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PRELIMINARY NOTE ON THE SURGICAL CURE FOR ROARING DUE TO LARYNGEAL PARALYSIS.

BY FRED SMITH, PROFESSOR, ARMY VETERINARY SCHOOL, ALDERSHOT.

THE question of the surgical treatment of Roaring is every day becoming more urgent. The public look to us to be able to do something, particularly at a time when we are anxious to impress upon them the value of our services to the State, and our desire for recognition as a scientific body.

This preliminary note, the outcome of Mr. Hopkin's excellent paper in last month's issue of the Journal, starts with the hypothesis that *Roaring, due to Laryngeal Paralysis, can be cured by operation*, and shows that another prevalent disease, involving the loss of thousands of pounds annually, will, in all probability, be brought within the category of curable affections.

The first attempt at surgical cure was made by Günther, of the Hanover Veterinary School, who proposed and practised excision of the Arytenoid cartilage. The operation as performed by him is exceedingly severe; so much so, that in the only case on which I saw it performed (not by Günther), the patient died within two or three days. The objection to the operation was its severity, the mutilation involved, and the chances of the food passing into the air passages. We may at once banish the two first objections, for we can perform the operation without mutilation; the last objection is not a real one, for horses will swallow both liquid and solids perfectly, after partial excision of the arytenoid cartilage has been practised. If, on the other hand, the whole cartilage be removed, there is nothing to prevent food falling into the trachea, and such an operation would be unwarrantable, and, moreover, useless.

The operations which I have to describe have been devised according to the views taken of the pathology of the disease, and

the cause of the sound. Dr. Fleming regards the sound as produced by the relaxed vocal cord on the paralysed side. For my own part, I feel convinced that the greatest noise is produced by the arytenoid cartilage on the paralysed side hanging over the opening of the glottis; the more the glottis dilates on the sound side, the more the paralysed and depressed portion is drawn towards the central line.

We may banish the German method of extra-laryngeal operation from our consideration, for we may at once say that all our operations are to be performed intra-laryngeal, either through the crico-thyroid ligament, or through an incision into this ligament, the cricoid cartilage, and the crico-tracheal ligament. This advantage over the operation of the German school will be at once manifest. The mutilation is avoided, the hæmorrhage is insignificant, and we can at once attack the affected part. The suggestion was Dr. Fleming's.

In my earlier operations I worked only through the crico-thyroid ligament; everything had to be done by the sense of touch, and the difficulties of operation were great, owing to the narrow and cramped space. Now, I advise a free and extended incision through the crico-thyroid ligament, cricoid cartilage, and crico-tracheal ligament, exposing the whole interior of the larynx, and leaving ample room for work and manipulation. Moreover, with an incision of this kind the interior of the larynx can be illuminated daily by means of a mirror, and thus the condition of affairs known. For this purpose the external wound must not be allowed to close until we are satisfied with the results of the operation.

The following operations may be performed to remove the noise caused by laryngeal paralysis:—

1. Excision of the left vocal cord, an operation which in this paper will be known by the name of its originator, viz., Fleming.

2. Partial excision of the arytenoid cartilage (performed intra-laryngeal), and complete removal of the left vocal cord.

3. Opening the crico-arytenoid articulation through an incision into the larynx, mechanically raising the arytenoid cartilage and retaining it up, until anchylosis has occurred.

When I commenced to write this notice, I believed that I was first in the field with this operation, but Dr. Fleming tells me that one of Dr. Moeller's (Berlin Veterinary School) operations is to immobilise the arytenoid cartilage.

4. Excision of the inferior face of the larynx, removal of muscle and a portion of cricoid cartilage, and establish a large and permanent fistula into the air passages at a place where it is out of sight.

I will describe in detail each of these operations. First, with

regard to the position of the animal; after being cast in the usual manner the legs should be raised in the air by the rope on the hobbles passing through a block; the limbs should be perfectly vertical, so that the patient is resting on the spine; the head is now extended, and the whole laryngeal region is most perfectly exposed. The hair having been clipped close, the finger endeavours to feel for the cricoid cartilage or crico-thyroid ligament. This is a very difficult matter in animals which have the sterno-thyroid muscle well developed; but if the head be slightly raised, and the neck made less tense, the part may perhaps be defined. As a surgical landmark, take the parotid edge of the inferior maxilla; a line drawn along this to the larynx is just opposite the crico-thyroid ligament; fix and steady the part, and make a longitudinal incision through the skin exactly in the central line, and carry it as far as 2 inches. Next make an incision in the sterno-thyroid muscle, tearing, rather than cutting, its fibres so as to avoid hæmorrhage as much as possible. Observe that the incision in this muscle corresponds in size to that made in the skin. Some tissue, including fat, will now be felt covering the face of the larynx; the finger should carefully examine the part, making out the crico-thyroid ligament, cricoid cartilage, and crico-tracheal ligament in turn; clear all the tissue away until the above ligaments and cartilage are exposed, but on no account open the larynx until all the hæmorrhage has stopped (tying or twisting small spirting vessels with this object); for blood passing into the larynx is very obstructive to further work.

The larynx is now opened by a longitudinal incision, extending from the thyroid cartilage to the trachea (taking care not to damage either of these structures), and the wound is held apart by good retractors.

No matter what the operation is that we are going to perform, this method of opening the larynx will hold good. The various operations will, therefore, be described from the time the larynx is opened, and the edges of the wound drawn well apart.

Fleming's operation.—Excision of the left vocal cord.

The operator kneeling on the off side of the patient, places the

FIG. 1.

left fore-finger in the left ventricle of the larynx, and by means of a peculiar curved needle (Fig. 1) held in a vertical position, with the

back of the operator's hand towards his face, transfixes the vocal cord about midway between its attachments; the handle of the needle is now depressed so as to touch the sides of the patient's neck, when the point of the needle, from its peculiar curve, turns up towards the operator, and a piece of silk being placed in the notch, the needle is withdrawn by reversing the movements which introduced it. We have now complete command over the cord, and the ligature being tightened, a blunt-pointed hernia knife is introduced at the wound made by the needle, and, cutting upwards, the cord is divided from its thyroid attachment. We now cut downwards until we get to the cartilaginous process of the arytenoid, to which the cord is attached, and, by exercising traction on the ligature, this portion is drawn upwards and snipped off with a pair of curved scissors (Figs. 2 and 3). The operation is now com-

FIG. 2.

FIG. 3.

pleted. There is considerable destruction of mucous membrane, and the thyro-arytenoideus muscle is exposed. To avoid the former, I would recommend an incision through the mucous membrane in the length of the cord, and to dissect this back in flaps before passing the needle under the cord, so as to expedite the healing process and avoid *contraction* of the larynx. In the same way, spare the mucous membrane covering the vocal process of the arytenoid, as far as possible, by stripping it off before excising the cartilage. If the mucous membrane is to be saved (and *I strongly recommend it*), clean the part with scalpel and forceps before attempting excision. The loose flaps will, in the process of healing, fall back into their proper place.

The hæmorrhage is insignificant; washing out the larynx through the wound *while the head is depressed* will stop the bleeding. The after-treatment consists in washing out the larynx (if

the patient will submit to the operation), and examining the part

FIG. 4.

daily with a mirror, or laryngoscope (Fig. 4), with an object, and in a manner, to be afterwards described.

Partial Excision of the Arytenoid Cartilage.

This operation is more difficult than the last. Pass the left forefinger into the left ventricle of the larynx, and with the second finger of the left hand draw the anterior portion of the arytenoid towards you, and divide with scissors the portion of mucous membrane which attaches the lateral face of the arytenoid cartilage to the epiglottis and thyroid cartilage. This is the first incision, and it must be carried down from about one-half to three-quarters of an inch, keeping close to the arytenoid cartilage. Now, with a blunt-pointed knife, divide for not more than a quarter of an inch, one arytenoid from its fellow, at the anterior part, through the central line. Next, apply the laryngeal forceps (Fig. 5), getting a

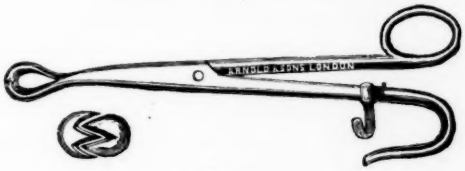


FIG. 5.

good hold of the cartilage pull it towards the operator, which has the effect of raising it, and with a stout pair of scissors cut through the arytenoid cartilage obliquely from above downwards and forwards, commencing the incision as far back as the ventricle of the larynx. This is the second incision.

The next step is to go through the manœuvre of removing the mucous membrane from the vocal cord and cartilage, and to excise the cord as described in Fleming's operation. The cartilaginous attachment is, however, dealt with differently; it is separated deeply from the side of the larynx until perfectly free; it is then, with peculiarly curved stout scissors (Fig. 2), completely excised

from the roof of the larynx, the incision being carried directly forwards and meeting the second incision about midway through the cartilage. This is the thickest portion of structure to cut through.

The only portion of the arytenoid now left is that surrounding the cricoid articulation; its cut edge should present two facets, which are nearly in the one plane.

To recapitulate, the steps of the operation are four. See Fig. 6.

1. Divide the mucous membrane attaching the arytenoid to the epiglottis and thyroid. Incision 1 Fig. 6.

2. Divide obliquely downwards and forwards the anterior half of the arytenoid cartilage. Incision 2 Fig. 6.

3. Excise the vocal cord, sparing the mucous membrane. Incision 3 Fig. 6.

4. Complete the removal of arytenoid, cutting forward close to the roof of the larynx, and joining the first incision. Incision 4 Fig. 6.

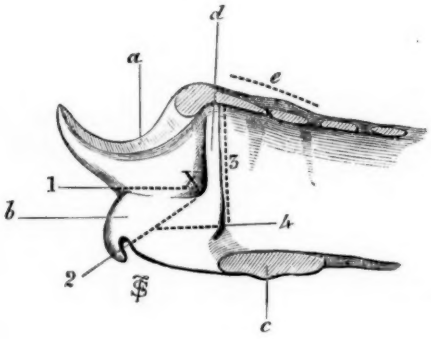


FIG. 6.

Section through the larynx in the operating position, showing the lines of incision.
a—Epiglottis.
b—Arytenoid cartilage.
c—Bezil of cricoid cartilage.
d—Left vocal cord.
e—Line of incision for opening the larynx.
1—Dotted line shows the 1st incision for removing the arytenoid cartilage.
2— " " " 2nd " " " "
3— " " " 3rd " " " "
4— " " " 4th " " " "
x—The ventricle of the larynx.

Wherever mucous membrane can be spared, save it just as one saves skin, etc.; removal favours contraction of the larynx. If the whole of the operation could be performed after the mucous membrane had been carefully stripped off, so much the better.

After the operation, wash out the larynx; treat as an ordinary wound; examine daily with a mirror. No danger need be apprehended of food going down the wrong way; *it does not occur.*

Opening the Crico-Arytenoid Articulation.

This articulation is found on the roof of the larynx, close behind the vocal process of the arytenoid cartilage. Feel for the depression in the roof of the larynx in the central line where the cricoid and two arytenoids meet; the articulation is about half an inch to the right of this, and slightly behind it; it is close up against a little projection on the vocal process of the arytenoid cartilage on the roof of the larynx. Move the cartilage to and fro, and the joint may be indistinctly felt. Make an incision through the mucous membrane about a quarter of an inch long, the incision being carried slightly backwards. Now introduce, in a forward direction, a narrow-bladed but stout knife, and work to and fro two or three times, not cutting more than a quarter of an inch deep; now put the knife in again in the same direction, and, keeping the blade in its place, raise the hand and press the handle of the knife forwards; the point of the blade should now look backwards, then cut as before.

The first step opens the joint, the second gets deeper into it (which is here of very peculiar shape), and effectually opens the articulation on the upper surface of the cricoid cartilage.

The operation is now completed; it only remains to fix on to the cartilage an arrangement by which it can be propped up and kept in its place, with the left side of the glottis widely dilated. This can be done with an Assalini's tenaculum, fixing it on to the arytenoid at the anterior part, above the vocal cord; place a stout wire suture through the anterior commissure of the wound, for the purpose of tying the handle of the tenaculum to, and so keeping it a fixture. The propping-up need not be done until the following day. The tenaculum being then obliquely across the wound, the handle on the right side, press upwards and outwards and tie the handle in its place, through the wire suture.

Of course this method is a rough-and-ready one, but I hope to have shortly a more refined procedure by means of a screw which can be accurately adjusted; or else to keep the glottis dilated (and so the arytenoid raised), by means of an indiarubber ball which can be inflated at will.

Excision of the Inferior face of the Larynx or partial Laryngectomy.

The fourth operation to be described is devised as a last resort when all others have failed. It consists in making a large fistulous opening into the larynx, to be kept permanent. In

other words, it is to be a *laryngectomy* instead of a tracheotomy, and will have the following advantages over the latter: (1) It will be very much larger than any tracheotomy could be performed; (2) It is completely out of sight, and thus no eyesore. These advantages are so great as to need no further comment; but I would distinctly state that this operation should only be adopted when all other means have failed.

The patient being in the position originally described, mark with a piece of chalk on the neck the outline of the portion to be removed.

Arrange this so as to include the whole thickness of the sterno-thyroid muscle—a space, in fact, of two inches in diameter, both longitudinally and transversely. Make the usual longitudinal incision in the skin over the crico-thyroid ligament, cricoid cartilage, and crico-tracheal ligament, and selecting one half, cut away both muscle and skin for at least an inch all round, and serve the opposite side the same. The muscle will retract considerably, and go out of sight. Now carefully clear away all the tissue covering the parts above-named, until a space the size of a racket ball over the larynx is exposed. The next step is to carefully excise two inches of the ring of the cricoid cartilage, viz., one inch on either side of the central line. This must be done with care, so as to avoid opening the larynx. Nothing now remains but the ligaments in question and the mucous membrane. Stop hæmorrhage by tying all vessels, etc. The first stage of the operation is now completed, and one of two things may be done; either to finish the operation, or, what I should be inclined to advise, to leave matters as they are for a few days, until the swelling which will appear has subsided, and the edge of the wound is granulating. Whichever course it is determined to pursue, the second stage of the operation consists in opening the larynx by making two incisions through the ligaments and mucous membrane. The first incision is longitudinally from the thyroid cartilage to the first ring of the trachea; the second is horizontal, parallel with the ring of the trachea from the cut extremity of the cricoid cartilage on one side to that of the other. This will leave two flaps of mucous membrane, which must now be stitched to the edges of the wound by means of a fine needle and catgut or silk. Into the opening now made in the larynx, a racket ball could easily be introduced. The operation is finished. Our wishes are to get the mucous membrane to become united to the edges of the wound, and that is the reason why I should prefer opening the larynx when the wound is granulating. The flaps of mucous membrane will be found much swollen next day, therefore, the sutures should not be drawn too tightly. If we find union will not occur, the

flaps break away from their attachment, and show a disposition to curl in or come together again, remove them entirely with a blunt-pointed knife, cutting close to the edge of the cartilages.

Do not be afraid of cutting away too much tissue, for contraction of the wound is sure to occur to a certain extent.

If the operation is done as I have described, it is quite impossible to see the wound with the animal's head in the ordinary position; it can only be seen by looking up, or by depressing the head.

Throughout the three first operations, it is essential to keep the wound in the larynx open until we are satisfied that the healing process within is completed. This is accomplished by a plug of wood, the size and shape of the wound, secured to the neck by two tapes; and to prevent it coming out, it is tied on either side to the cheek-piece of the head-collar. The plug requires daily cleansing, and should be made of hard wood if possible. The wound can now, if necessary, be kept open for weeks. I think that a celluloid plug would be best, and this can easily be obtained of the required shape from a surgical-instrument maker.

If I adopt the inflated ball to support the cartilage, it will then be necessary for the patient to wear a tube in the larynx. Experience may show that it is best to keep the wound in the larynx, under all circumstances, patent with a tube rather than a plug.

The interior of the larynx must be illuminated daily either with a hand glass or else a proper mirror (Fig. 4). What we have to look for in particular *is any sign of growth from the cut edges of the cartilage;* these growths are exceedingly rapid, and soon assume the size of a walnut; they are composed of cartilaginous tissue, and even bony material. On their first appearance they must be checked, and the best application is an alcoholic or watery saturated solution of the solid chloride of zinc, or a saturated solution of silver-nitrate. This must be applied to the growth with a camel-hair brush or a piece of tow on a probe. Care must be taken not to fill the brush or tow, and to give it a shake before putting it into the larynx, so as to prevent it running down the side. Daily applications may be necessary until the tendency to form a tumour is checked. The caustic can be applied most accurately by illuminating the larynx and holding the edges of the wound apart, the patient's head being of course raised.

It is this tendency of the cut cartilage to form a tumour which constitutes the real difficulty in curing Roaring; if the growth has been allowed to assume large proportions it is best to remove it by operation with a pair of stout scissors. It will recur unless checked.

Spare the mucous membrane of the larynx as much as possible, or else contraction of one side will ensue during the healing process, and thus the calibre be considerably reduced, which will render the operation futile. It is for this reason that I regard propping up the arytenoid cartilage, and forming an anchylosed joint, as the operation of the future. This operation was devised from the knowledge obtained in previous cases of the rapid development of cartilaginous and bony material.

Lastly, after opening the larynx, before attempting anything further, make sure the case is one of laryngeal paralysis. If *both* vocal cords are seen moving, either in breathing or when the animal is made to swallow by touching the glottis with the finger, and the left arytenoid cartilage, instead of being *quite motionless*, is moving up and down, attempt nothing further; the cause of the roaring does not lie in the larynx.

Whatever subsequent benefit to the profession these notes on laryngeal surgery may be, the credit must be given to Dr. George Fleming, under whose immediate superintendence some of the operations have been performed, and through whose professional enterprise the inquiry has been undertaken.

Some of the statements made by me may, in the light of more prolonged experience, require modification. It is perfectly obvious that we are only at present finding out our difficulties, and the best way of overcoming them. We must not expect immediate and perfect success to fall to us; such has never been the case in the early history of any operation. Ovariotomy, for example, was thirty years ago deemed an unwarrantable procedure, owing to the dreadful mortality attending it; it is now daily and successfully performed, and the same may be said of abdominal section.

I must express my best thanks to Messrs. Arnold for their courtesy and the patience they have bestowed on the manufacture of these and other instruments.

SUPPOSITORIES FOR VETERINARY USE.

BY FRANK W. SOMERS, M.R.C.V.S., LEEDS.

HAVING noticed the benefits derived on many occasions from the use of morphia and other medicinal agents in the form of suppositories, as used in human practice; and having had many opportunities of witnessing the immense pain controlled, and relief given to animals by morphia in the hypodermic form, etc., I ventured some time back to give suppositories a trial in veterinary practice, in hopes that they would be found a ready means of using morphia and other drugs, and in some cases preferable to using the hypodermic form.

I was also hopeful that it would bring into more constant use those class of drugs which tend to alleviate animal suffering, of which every practitioner sees so much, and particularly in acute intestinal diseases; that they would be an addition to the veterinary pharmacopœia, and that they would also be very readily applied, since it is an easy matter to introduce a suppository through the anus into the rectum. To my mind, there is nothing in veterinary practice so satisfactory to the patient, to the client, and to the practitioner, as the hurried visit to see an animal which is suffering intense pain, and such pain entirely antagonized and relieved by the application of certain drugs, etc. This is done daily, and in our midst, and with very little trouble. I have found morphia suppositories to have very good effects in some very distressing cases. I do not wish to suppress in any way the use of other forms of drugs, because I have seen the morphia used in the subcutaneous form with the most eminent success; but I desire to say that the use of suppositories would be of great assistance in many ways to practitioners. Clinical experience has shown that morphia possesses the anodyne and soporific powers of opium, and gives to the drug most of its valuable properties. Since the subcutaneous method of administration has become general, the use of morphia to alleviate pain and spasm has become much extended. The constitutions of animals differ so much—and I have come across those animals whose idiosyncrasy is such as to render them peculiarly susceptible to the influence of both morphia and atropia. I have no wish to dilate upon the actions of drugs, as most members of the profession are well acquainted with such, but after using suppositories with such successful results, I do not hesitate to suggest and recommend them. Through the courtesy and kindness of Messrs. John Richardson and Co., wholesale chemists, Leicester, who are manufacturing this form of drug at my suggestion, I have been supplied with suppositories containing morphia and atropine. Some I have used in combination, and some separately. The following I have found to be of great service:—

Suppositories of Morphia muriate 1½ grains+atropine ½ grain.
" " " 2 grains+atropine ½ grain.
Suppositories of Morphia alone in 2, 3, and 4 grain doses.

I have used the above in several cases in my own practice, and also in the practices of several professional friends. The following cases are most suitable: Intestinal diseases generally, particularly Flatulent and Spasmodic Colic, Impaction of the Colon, Enteritis, and all those acute diseases where pain can be counteracted by their use. I have used suppositories of the morphia and atropine, combined,

with great success in cases of Tetanus, and I can specially recommend them, as the insertion of a suppository causes no disturbance whatever to the animal—an important feature to be remembered. As yet my experiments have been confined to horses, and I have given doses according to the size, age, and condition of the animal. In some very heavy, coarse horses, two or three suppositories may be inserted, and more or less as the constitution allows. Other drugs might be used in the same manner, viz., physostigmine, etc. I hope that the members of the veterinary profession will give suppositories a fair trial, and I feel sure that their efforts for the benefits of animals will be attended with satisfactory results.

The suppositories are conical in shape, the apex being blunt; their length is about $1\frac{1}{4}$ inch, and $\frac{5}{8}$ths inch at their base.

FRACTURE OF THE OSSA SUFFRAGINES OF BOTH FORE LIMBS.

BY J. B. SAVAGE, M.R.C.V.S., 5TH LANCERS, ALDERSHOT.

THE following case may be of interest to some of the readers of the valuable VETERINARY JOURNAL.

On the 7th June last, whilst the troops were charging across the sandy Long Valley, troop horse F 40, 5th Lancers, became suddenly lame in both fore without falling, pecking, or stumbling. The man riding of course dismounted, and in course of time the mare was brought into barracks in a horse ambulance, and at once put in slings. Most intense pain was evinced; with a quivering of the body she would throw her weight back on the hind legs, whilst the fore feet were thrust forward, as if suffering from acute Laminitis. The near fore pastern was swollen a little in front, whilst the off fore fetlock and pastern was tumefied all round. On manipulation crepitus from the suffraginis, off fore, could now and then be detected, the sound being masked to a great extent by the swelling. The suffraginis of the near fore simply was very painful to the touch, in the median line in front, and just below the fetlock joint, and would not give forth any crepitus.

On the animal being destroyed, the following appearances were noted—most extensive hæmorrhage into the loose tissue around the off fore fetlock and pastern, but which was not nearly so marked around those joints of the near fore.

Right Metacarpus.—From a spot, the size of a sixpenny piece, on the outer half of the lower extremity of this bone, the cartilage of incrustation was entirely removed, leaving a cup-shaped cavity

—the bone showing being of a pale pink colour. The median ridge was deeply and roughly furrowed in its middle, from its anterior to its posterior extremity—just as if it had been hacked with a blunt, narrow-pointed searcher—the result of contact with the edges of a fracture of the suffraginis to be noted hereafter.

Right os Corona.—On the upper face, a little behind the central line, and running across the bone towards the lateral faces, was a red-coloured streak, three-quarters of an inch long and a quarter broad—evidently extravasated blood beneath the cartilage.

Right os Suffraginis.—This was completely split in two, into right and left halves, the fracture extending from its upper to its lower face in an antero-posterior direction, in the median line, vertical at the upper two-thirds of the bone, but inclining obliquely outwards and downwards at the lower third, and reaching the inferior extremity of the suffraginis about the centre of the outer facet.

The outer, or right half of the bone, was also divided into two by a vertical fracture running from the centre to the lateral face. Four small detached pieces of bone were also found.

There was most extensive hæmorrhage into the substance of the inferior sesamoid ligaments, these presenting the appearance of pieces of white string stretching here and there through a dark purple mass of coagulated blood.

Left Metacarpus.—This showed two grooves running in an antero-posterior direction on the median ridge, where the cartilage had been removed through contact with the edges of a fracture in the os suffraginis.

Left Os Suffraginis.—There was considerable hæmorrhage into the inferior sesamoid ligaments, particularly marked in the deeper sets of fibres; a vertical fracture extending from before to behind, and from the median groove straight down the centre of the bone to its middle, whence it inclined obliquely outwards and downwards to the outer facet of the lower extremity. These two lateral halves were firmly held together by periosteum and ligamentous structures.

Now it is to be remarked that this horse, previous to suddenly falling lame, *is said* not to have made any false steps, nor fallen either before or after the injury, although going at the gallop with 19 to 20 stone up. It is a marvel that she did not roll head over heels.

I was struck not only by the fact of both suffragines being broken, but their direction being symmetrical, viz., first straight down and then inclining outwards.

ACUTE RHEUMATISM FOLLOWED BY TETANUS.

BY GEORGE HOWE, M.R.C.V.S., BUXTON.

In the autumn of last year I was requested to attend a valuable cart mare, the property of a gentleman in this neighbourhood, which I found to present symptoms of acute Rheumatism, associated with cardiac mischief. After treatment for a few days the mare was able to perform a little light work, but her improvement was only of a temporary nature; for in about four or five days after commencing work she again fell suddenly lame in the opposite limb to that which suffered in her first attack. From the metastatic nature of the lameness and other symptoms I did not give much hopes of her ultimately doing any good, a prognosis which was fully corroborated subsequently by the animal's death and *post-mortem* examination. However, the mare became again apparently convalescent and was put to light work, when the attendant noticed that there was rather an abnormal flow of saliva from her mouth, and that she appeared somewhat stranger than usual in her manner.

After careful examination I had no hesitation in pronouncing the case as one of Tetanus, and endeavoured to ascertain the cause, but in vain.

Prompt measures were at once adopted to check the progress of the disease, but the animal in a few days succumbed.

The *post-mortem* examination revealed nothing abnormal, except that in the right side of the heart there was a large solid piece of fat which nearly filled both auricle and ventricle. Wondering whether this could possibly be the cause of the tetanic symptoms, I sent it to Professor Williams, who kindly replied that it was a clot which had undergone fatty metamorphosis, but whether it was the cause of Tetanus he could not say, as the pathology of that disease was at the present time so very obscure.

Mr. Darwell, senior, M.R.C.V.S., of Northwich, who was on a visit to Buxton, kindly saw the case, and fully confirmed my diagnosis and treatment.

I fear it will be thought that this is one of those cases hardly worth recording in the Journal, but I have often wondered whether or not this clot—evidently a sequel of previous rheumatoid attacks—could be the cause of this tetanic attack.

One of our leading medical authorities states that human beings will, after suffering from Rheumatism, occasionally become hemiplegic, paraplegic, or choreic, or even suffer from tetanic spasms with Trismus.

PITYRIASIS AND LEUCODERMA.

BY W. S. ADAMS, M.R.C.V.S., A.V.D., HOSUR, INDIA.

DURING the months of March and April last I had five well-marked cases of "Pityriasis" under treatment. All showed the characteristic symptoms of the disease, which varied in intensity in different cases.

It commenced in a small confluent papular eruption, generally diffused throughout the whole surface of the skin, from the coronets to the muzzle and croup. The surface temperature of the skin was very high, and it was very tender, the slightest rub causing an abrasion. The general health of the animals seemed to be but little interfered with, though in each instance the visible mucous membranes were of a bright-red colour. In all there was more or less loss of hair, and in each case there was the characteristic copious desquamation of epithelial scales. In one case the irritation was intense, though it was considerable in the others.

These cases occurred at a time when the weather was extremely hot and dry, and the horses were commencing to shed their coats. Three of the horses were of the heavy draught class; the others were lighter horses.

The treatment adopted was the same in each case. A purgative was given at once, any abrasions were treated with zinc lotion, and parts were washed with soda.

I subsequently gave liquor arsenicalis, and exercised the horses to promote the healthy action of the skin. All did well with one exception (which will be related hereafter); the coat came off, and as the new one grew, the skin regained its normal appearance, and the desquamation of dandruff gradually ceased.

REMARKS.—Some time ago I recorded a case of Pityriasis in the *Quarterly Journal of Veterinary Science* in India. I then said I was guided in my diagnosis by Dr. Lieving's work on the diagnosis of skin diseases, in which the guides to the differential diagnosis of Pityriasis rubra are given as follows: (1) Its universal or nearly universal character; (2) the extreme redness and tenderness of the skin; with (3) the excessive exfoliation of thin plates or scales of epidermis; (4) the absence of thickening or infiltration in the true skin, which distinguishes it from Psoriasis; and (5) the absence of any moist exudation, which distinguishes it from ordinary Eczema.

In following each of these points *seriatim*, we find: 1st, The universal character; 2nd, The redness of the skin is of course not recognisable, but the bright red colour of the visible mucous membranes was very remarkable; extreme tenderness of the skin

was noteworthy in each case, the slightest scratch causing a sore; 3rd, the excessive exfoliation of thin plates orscales of epidermis; 4th, the absence of thickening or infiltration of the true skin. After the first eruption had passed off, in no case was there any such thickening or infiltration, although there was subcutaneous œdema; 5th, the absence of any moist exudation, except where the tender skin had been abraded.

Remarks.—These cases occurred, as I have said before, at the time the horses were commencing to shed their coats. This natural process was, I think, interfered with by the extreme heat and dryness of the weather causing unhealthy action of the skin, and was the real cause of the subsequent attacks of Pityriasis. All instances were mild in type, and in no case was there any tendency to assume a chronic form.

"*Leucoderma*," *or White Leprosy.*

The above cases seem to be a prelude to the case of "Leucoderma" which I am about to relate. One of the five cases of "Pityriasis" which I have described, and which I have noted did not do well, was also the subject of "Leucoderma." The two diseases were both existent at the same time, and were, I consider, quite independent of one another. On admission to the sick report for "Pityriasis," the mare showed all the symptoms described above, but perhaps in a milder form. There were noticed, however, some whitish spots about the muzzle, but after the subsidence of the Pityriasis, what had at first been but spots where there was a loss of pigment, now rapidly extended to the whole of the face, around the eyes, and both the upper and lower lips. Subsequently the whole surface of the skin became affected, and the loss of pigment could be seen on the hairless parts about the inside of the thighs, perinæum, etc., and also in the hollow of the heels; and any parts devoid of hair from injury, such as the marks of the branding iron, became white. White hairs appeared over the surface of the body, and the hair on the face, around the eyes, and on the ears also, became white; the eyelashes were affected, but the long hairs about the muzzle retained their natural colour.

Remarks.—This case, I think, from its exceptional character, is worthy of record. I have frequently met with instances in which there has been a loss of pigment about the lips and other hairless parts, but I have never seen a case similar to the one now recorded, in which the whole surface of the skin was, and is, affected. The mare was a bay with a dark muzzle; she has now become almost a roan, with a white muzzle and white hair on the face, around the eyes and on the ears. That it is the special disease of the skin

described as affecting the human subject, termed "Leucoderma," I have no doubt. As to the cause, I consider there was a disposition to the disease before the attack of "Pityriasis," as spots were noticed on admission of the mare to the sick lines, and I believe that this attack, creating an altered and unhealthy action of the skin, was the cause of the general and rapid loss of pigment.

With regard to treatment, I seem to be helpless. At first I gave the usual alteratives and tonics, arsenic and preparations of iron, and used various applications, when the disease appeared to be confined to the muzzle; but when I found that the whole surface was affected I ceased local applications, but kept the mare in exercise, and promoted the healthy action of the skin. The mare is in good health and condition, but has a comical appearance, similar to the parti-coloured face of a Christy minstrel.

CEREBRAL TUMOURS.

BY W. CAUDWELL, F.R.C.V.S., WORKSOP, NOTTS.

Case 1. On March 18th, 1885, at 4 a.m., I was called to attend an aged agricultural mare, the property of Mr. William Nicholson, which had aroused the people at the farm by breaking loose in the stable and bursting the door open. I found her attempting to rear and get her fore feet into the manger, and she was sweating profusely. I abstracted blood and administered a cathartic. March 19th. I found her with her head pressed against the wall, her tongue was protruded and bitten, mastication was imperfectly performed, and she moved with a staggering gait. The symptoms of brain pressure subsided somewhat, but again returned with increased severity, and the animal died on the 24th of March.

A *post-mortem* examination revealed the presence of a tumour about the size of a pullet's egg, in the plexus choroides of each of the lateral ventricles of the brain.

Case 2. On September 6th, 1886, I was requested to attend a brown mare, twelve years old, the property of a grocer in this town. Symptoms: During the few previous weeks the animal had appeared lethargic and had not fed so well as usual. She ate a little food and then apparently fell asleep, and held her head persistently to the right side and in a depressed position. She did not lie down to rest at nights as usual, and when at work she was drowsy and constantly bored to the off side. Her pulse, temperature, and respiration were normal. A full purgative dose was administered, and after the bowels had responded freely the animal became a little better and resumed work.

September 17th. She has occasionally broken loose at night, and during the daytime she rests her head in the manger and falls

asleep. When roused she commences to feed, but again quickly relapses into a somnolent condition. She is moved over in the stall and backed with great difficulty.

I informed the owner that there was probably a tumour in the brain, and that treatment would be of no avail.

September 18th. On being let loose in the yard she walked round, turning to the right side, and when made to walk in the opposite direction she ran against the wall and other objects, apparently from an inability to control her movements, and not from defective vision, as the pupils dilated and contracted normally.

I abstracted blood and repeated the purgative, and temporary improvement followed.

September 25th. The owner consented to have the animal destroyed. *Post-mortem* examination :—On exposing the brain and dividing the cranial nerves, in attempting to separate the right olfactory lobule, my finger came in contact with a hard tumour, which was very firmly connected to the crista galli process and cribriform plate of the ethmoid bone, a scalpel being required to sever the connection. The right hemisphere, independently of the tumour, appeared larger than the left. The left hemisphere weighed nine ounces one drachm ; the right, to which the tumour was attached, weighed twelve ounces five drachms. The other divisions of the brain together weighed four ounces three and a half drachms.

Case 3. On June 1st, 1888, I was requested to see a draught mare, sixteen years old, belonging to a farmer who bred her. Two days before I was called in he observed her to appear drowsy and indisposed. She staggers in her gait and has a tendency to rush forward. The mucous membrane covering the lips has teeth marks upon it. Pulse, respiration, and temperature normal.

Diagnosis—Cerebral Tumour. June 2nd, 7 p.m. She has become much worse, pulse very frequent and scarcely perceptible ; she has bitten pieces out of the wood-work of the stable and staggers round the box, occasionally falling, and she presses her head against firm objects. I advised the owner to destroy her, but he declined ; however, she died the following morning, about three o'clock.

A *post-mortem* examination revealed the presence of a tumour in the plexus choroides of the left ventricle of the brain. A deposit of a similar character to that of which the tumour was composed existed in the plexus choroides of the fourth ventricle.

The chief interest attaching to this case is its probable hereditary origin ; an own brother to this mare having died about a month before from cerebral tumours, and the dam of these two horses was found dead in the field some years before, but unfortunately the owner did not have her examined to ascertain the cause of death.

ENCYSTED BULLET.

BY T. MARRIOTT, A.V.D., SIALKOTE, INDIA.

TROOP-HORSE H 14, 2nd Dragoon Guards, admitted to hospital 5th April, 1888, suffering from a large purulent abscess, situated between the point of the off shoulder and front of the sternum. A depending orifice was made, and a large quantity of pus escaped, but after evacuation of the pus extensive induration of the surrounding tissues remained for several days.

On 25th April a second abscess formed in the indurated tissue, and was opened. Suspecting the presence of a foreign body, on examination the probe came into contact with a hard substance which, with a little manipulation, was extracted, and to my surprise it was found to be a Snider bullet, slightly corroded at the apex and having a mark on the base, presumably caused by an attempt to extract it with the bullet forceps.

Referring to the Veterinary History Sheet, I found this horse was admitted to hospital at Cabul on 23rd December, 1879, suffering from a gun-shot wound in the neck, and discharged cured 17th January, 1880. On careful examination, I detected a small scar on the off-side of the horse's neck, over the transverse process of the fifth cervical vertebra, ten inches from the point of extraction of the bullet. It must have been a spent ball, as the apex was not altered the least in shape.

I forward this case, as it seems strange that a bullet should remain encysted for over eight years without causing any apparent inconvenience; then, without any exciting cause, should suddenly act as a foreign body, and make its way to the surface.

SHORT NOTES OF A CASE OF FRACTURED HUMERUS OF A HORSE; WITH RECOVERY.

BY J. A. MEREDITH, M.R.C.V.S., A.V.D., MHOW, INDIA.

IN forwarding the following notes for insertion in the VETERINARY JOURNAL, I do so in the hope it may prove of some slight interest to its numerous readers. I consider the case somewhat unique in itself, being a most apparent fracture easily diagnosed, and one that made a speedy recovery, which was greatly aided by the temperament of the patient and the unceasing and *quiet* attention a syce can bestow in cases that require rest and quietude.

Subject.—A black Arab gelding, one of the few remaining in the Battery D 2 R.A., stationed at camp Deesa, aged 11 years, 14 hands 2 inches.

January 30th, 1888. The patient was kicked by another horse

at 7 a.m. during exercising order, owing to the syce who was riding him taking the horse too close to the horse in front. It was reported to me by the sergeant-farrier of the battery after the horse's arrival at the sick horse lines. The accident happened near to the lines, so the horse had been induced to walk quietly into hospital by extending his leg each step as required, because he was quite unable to do so himself. Direct seat of injury: the deltoid tuberosity of the near humerus, with laceration of the outer covering some two inches long. Upon introducing my finger into the wound, I could discern a longitudinal fracture of the humerus, together with some loose fragments, which I removed. The division of bone extended some five inches, and was most apparent during the time the patient was standing upon the limb (which he could do with ease); but when the limb was flexed the fracture could be brought in much closer affinity, owing to the muscles being in a relaxed condition, and the fracture regaining its normal position. I had the patient immediately placed in slings, and antiseptic dressings of Acid carb. 1-30 applied to the wound.

January 31st. Limb slightly swollen, patient easy, eating.

February 1st. Exhibits pain, and is uneasy. Gave Tinct. aconite xvɱ.

February 2nd. Patient shows more uneasiness; limb swollen; Gave Pot. nit. in water; eating fairly well. Discharging freely from wound.

February 5th. Somewhat improved, and not exhibiting so much pain.

February 9th. Doing very well; rests well in slings; swelling gravitating; hand-rubbing to the lower part of the limb; eating.

February 14th. Swelling decreasing; general improvement.

February 20th. Improvement; wound healing rapidly; able to slightly extend the fore arm.

March 3rd. Great improvement; swelling subsided, wound healed; able to extend fore arm.

March 16th. Removed out of slings; allowed a loose box.

March 20th. Gentle exercise (walking).

April 5th. Discharged cured.

Editorial.

LARYNGEAL SURGERY.

VETERINARY surgery is not very progressive, in the ordinary acceptation of the term, and in this respect it compares unfavourably with the surgery of mankind. There may be adduced several reasons for this slow progressiveness, and among them perhaps that of utilitarianism may be mentioned as the most potent. Veterinary operations, unless they restore an animal to usefulness, or even sometimes to its pristine condition of health and conformation, are valueless, and the life of the patient itself is generally no longer worth preserving. No better illustration of this disagreeable truth could be given than the cases of fractures of limb-bones of horses, in which, owing to the uncertainty of a cure being followed by freedom from lameness, destruction of the unfortunate animals is in the great majority of instances decreed, so that fracture of a limb-bone in a horse is only too often synonymous with death to it. And so with several diseases of the feet and some other organs. In the human species the aid of surgery would be invoked in such cases, and no matter how great the amount of mutilation or of subsequent disability the curative measures might entail, so long as the life of the patient was preserved, the surgeon would obtain credit and gratitude for his skill and careful treatment. This may be urged as the principal plea for the apparent unobtrusiveness or non-aggressiveness of veterinary surgery, as compared with human surgery, which is markedly progressive, and leaves no organ or tissue of the body exempt from attack when occasion demands its intervention.

But the thought often arises, in considering the limits and aims of veterinary surgery, whether veterinary surgeons are not sometimes, or even too often, averse or afraid to employ all the resources of their art, under the apprehension that they might fail to accomplish everything that is required or expected of them, when called in to say whether any, and what surgical treatment may be adopted in certain cases of disease or accident. It is generally taken for granted in only too many instances, that treatment is useless, and that the disease or injury being incurable—at least, so far as after-usefulness is concerned—the case may be left to run its course, or the animal be consigned to the knacker.

Surgery is nothing if it is not courageous, as well as skilful and discreet. Operations are now commonly and successfully performed upon the human body, which in the last century were undreamt of, and fifty years ago would have been pronounced impossible, or certainly fatal in their results. It may therefore be that veterinary surgery has been lacking somewhat in courage, and its practitioners, taking the *ipse dixit* of their predecessors as gospel, have not ventured out of the beaten track of unquestioning and undeviating routine.

The very limited number of operations included in veterinary surgery might be advantageously increased, we think, if our colleagues, availing themselves of the aid of modern anatomy, physiology, and pathology, as well as the assistance other branches of science can afford—not omitting mechanical science, were to acquire some of the courage which distinguishes human surgeons, and increase the usefulness of their profession by adding to the list of useful operations. There are many organs which can now be safely rendered accessible to the hand and instruments of the veterinary surgeon, and when they are diseased or injured, his interference may restore the suffering creature to a serviceable condition, while relieving it from distress and pain.

Among the organs which have hitherto been considered beyond the scope of veterinary surgery—at least in this country—is the larynx of the horse, an organ which, owing to the great length and powerfulness of that animal's jaws, and the dimensions of its soft palate, cannot be examined or manipulated *per oram*. And among the morbid conditions of that organ which have been looked upon as incurable, is that which causes the grave respiratory defect known as "roaring." This defect, owing to its serious influence on the utility, and consequent value of horses, as well as the obscurity surrounding the pathological conditions which give rise to it, has rendered it a subject of more than ordinary interest and investigation to ourselves, for many years, as will be seen on reference to the VETERINARY JOURNAL for January and February, 1882, and April, 1887.

"Roaring" is generally considered incurable, and no doubt in the great majority of cases it is, when it has become chronic; so that, as a rule, attempts at cure are seldom if ever made. Tracheotomy, and wearing a tube in the trachea afterwards, first introduced by Günther, of the Hanover Veterinary School, half a century ago, has been sometimes resorted to, but while it affords a certain amount of relief, it has grave disadvantages and cannot be considered as more than a palliative. The removal of the obstacle to respiration, so as to render the horse permanently serviceable, has been attempted at different times on the Continent, though we believe with varying success, and the method of operation appears to have been in many respects not commendable. For a considerable period, we have endeavoured to devise a plan of operation which, while much simpler, easier, and more likely to be effectual than any yet attempted, would be attended with less mutilation and subsequent danger. This method is described by Mr. Smith in the present number of the Journal, though the description is not quite exact, as the manual details, and indeed the entire operation, have been considerably modified. There is every reason to hope, judging from the experience already gained, that the cause of roaring may be removed by this operation, and also that endo-laryngeal surgery, in veterinary practice, will be placed on a sound and safe basis; for it has been demonstrated that any part of the interior of the horse's larynx is now, perhaps, more accessible to the surgeon than is that of man, and that it is somewhat tolerant of surgical manipulation.

There is also a prospect of successfully employing the electric light to illuminate the interior of the organ, and thus to demonstrate its condition to the vision.

We hope soon to be in a position to make some important announcements with regard to this subject, which is receiving all the care and attention it so much merits; in the meantime, it is established that the interior of the living horse's larynx need no longer be regarded as a *terra incognita* to the veterinary surgeon, nor remain exempt from operative treatment.

INTRAVENOUS PROTECTION AGAINST RABIES.

A VERY interesting and important discovery has been made by Professor Galtier, of the Lyons Veterinary School, with regard to Rabies. He has found in inoculating, subcutaneously, sheep and goats with rabific virus, that the disease was almost invariably produced; but when, on the contrary, the same virus was introduced into a vein, the inoculated animals not only did not become rabid, but were protected against the malady. Immunity was even conferred when the intravenous injection was made twenty-four hours after subcutaneous inoculation.

Such results are important from more than one point of view, but their most practical application is obvious. Flocks and herds which have been bitten by a rabid dog may, if the latter is killed, be preserved from ill effects by taking its medulla oblongata, making an emulsion of it, and injecting this into the jugular vein of the endangered creatures.

CASTRATION OF THE MALE AND FEMALE DOMESTICATED ANIMALS.*

BY H. A. PAGET, LOUGHBOROUGH, ENGLAND.

IN discussing the necessity for, and methods and effects of, castration of the various species of domesticated animals, it will be unnecessary for me to enter into detail with regard to the common processes so well known to all; neither will time permit me to do more than just mention the abnormal results which have for their exciting causes some special mode or modes of procedure.

Attempting, therefore, only to describe the *modus operandi* of such methods as are uncommon, or have for some real or imagined virtue commended themselves to my special notice, I shall leave the history of the operation with the remark that it was performed upon males as early as seven centuries preceding the Christian Era, and upon females as far back as the sixteenth century, and plunging at once into my subject, take for consideration first the males, beginning with the horse.

Castration has been performed on the horse in thirteen different ways, some surgical, humane, and successful, others unsurgical, unsuccessful, and brutal in their cruelty.

Bearing in mind that it is the desire of the operator to inflict as little pain at the time, and as little inconvenience afterwards as he can, upon the poor animal who is forced to undergo the operation, the more perfectly to fit him

* Read before the Veterinary Medical Society of the Ontario Veterinary College on February 28th, 1888.

for man's exorbitant demands, and also that it should be performed in the most surgical, practical, and economical way possible, we shall be in a position to give our unprejudiced consideration to the most common modes now in vogue.

The age at which the colt should be emasculated is a much-disputed point, varying from ten days to two years, the average being one year, and I think quite late enough, unless from lack of development it is thought desirable to leave him entire longer. The only preparation necessary is a moderated supply of bulky food for a couple of days previous to the operation; stimulating food in not however to be withheld.

There are two positions, the standing and the recumbent; the latter is the oldest, and the animal being thoroughly secured it is impossible for him to disconcert the operator by his movements; his (the operator's) person is in greater safety, and he can select any of the methods from the many at his command. The standing operation is, however, coming into favour fast on this continent, and for it it is urged that time is saved, that no risk is run of injuring the animal whilst being thrown, and that the operater is in many ways saved much trouble. The colt is, however, unsecured save by a twitch, and should he struggle will oblige the operator to let go his hold or pull unduly on the cord; it also confines him to the use of one or two methods.

The operations of simple excision, scraping, tearing, free torsion, ligature of the cord and envelopes or cord alone, ligation of the defferent canal, bruising and crushing of the cord, and double subcutaneous torsion, with their variations and combinations, have for several reasons been discontinued in the horse.

First, then, comes the clamps, the oldest of all methods, and one extensively practised by itinerant practitioners and men who aspire only to the title of "castrator," because it is easy to learn and very successful. On account of the lengthened tension to which it subjects the cord, the excruciating pain to which it must for a time subject the animal, and the fact that its most ardent admirer could never call it surgical, professional men are gradually discarding it. Paralysing, as it must partially if not entirely, the cremaster muscle, and thus rendering it impotent when the clamp is removed, it will be seen that the end of the cord will hang round the lips of the wound and the walls of the scrotum, instead of retracting into the inguinal canal, furnishing *the* exciting cause, par excellence, of Schirrous Cord.

Then comes limited torsion, Professor Williams' favourite method, for which he claims virtues from a humanitarian standpoint; these I must admit I fail to see, and though perhaps hardly as cruel as that by the clamps, it follows close in its wake in this respect—it is successful, though tedious and unsurgical.

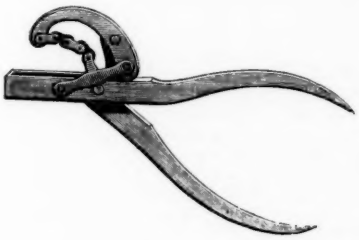
The operation by actual cautery with its variations is still used largely, and if the incision is made with the knife, and the end of the cord only seared, is, I think, not so barbarous as it might at first sight appear. It is eminently successful, which I think is due to the antiseptic power of the hot iron. More swelling follows this than any other operation, and it cannot claim surgical pretensions.

The ecraseur is just now the pet method of the veterinary profession on this continent, and also in some parts of Europe, where it has rapidly come into favour lately. And slowly but surely, my conservative countrymen (Englishmen) are, one by one, taking up this mode of operating. It is chiefly to be commended for the expedition and ease with which it can be performed, both in the erect and recumbent positions; it reduces hæmorrhage to a minimum, and though undoubtedly causing great pain, more nearly approaches surgery than any of the aforementioned methods, and it is equally successful. It is a much-disputed point, as to whether the ecraseur should

be applied over the whole cord, or only the vascular portion of it. The advocates of the former mode claim that the instrument is intended to divide the artery by bruising it, which it does more effectually when the whole cord is enclosed, whilst those advising that the ecraseur should be applied over the vascular part only, state that when the whole is enclosed only one side of the vessel comes in actual contact with the ecraseur, the other being crushed through the medium of the posterior septum, and thus hæmorrhage is more likely to result. With a properly made ecraseur there is no danger of hæmorrhage either way. Less pain is, I think, caused by the latter method, and for the standing operation it is of advantage, as will be explained hereafter.

If the discovery made by Mr. Wende, veterinary surgeon, Buffalo, N.Y., for which the United States Association awarded him a premium, is correct—viz., that the most fruitful cause of Schirrous Cord is non-division of the serous fold of the posterior septum, and the consequent retention of pus therein—it is obviously better to divide the posterior septum with the knife, as there will then be less danger of pus being retained than if the ecraseur be applied over the whole cord.

There are several kinds of castrating ecraseurs. I think for the recumbent position the ordinary Farmer Miles' pattern is as good as any. For the standing position, however, the ecraseur made in the form of a pair of spring



pincers is superior to any I have yet seen. In this position the posterior septum should be divided with the knife, as expedition is everything with a restive animal, and the pincer ecraseur is only able to take in the vascular part of a large cord.

The animal may be only secured by a twitch, or the off hind leg may be drawn forward by means of a side line, the operator standing on the near side. If when the ecraseur is applied the animal should struggle or possibly go down, the operator must not pull on the cord, nor let go his hold of the ecraseur, but relax his grip on the instrument which by virtue of its spring will open and allow the cord to escape until it can again be applied. The incision is made thus. The testicles are grasped with the left hand, and both incisions quickly made from before backwards, going well into the glands; the operator then lets go with his left hand, the animal being unable to retract the testicles, the sudden shock having apparently paralysed the muscles of the parts.

Last and not least, I shall describe the operation of ligation of the spermatic artery alone. It should be performed as follows. A flat clamp, like that used for actual cautery is placed upon the cord, just tight enough to prevent it from retracting; the cord is then cut off with a sharp knife about half an inch from the

clamp. The vessel will now be seen standing out prominently from the rest of the tissues, and with or without the aid of the forceps, can easily be ligated alone. The best ligature will, of course, be carbolised cat-gut, the ends being cut off close to the knot. If silk be used, a long end must not be left to pull it away with, which is unnecessary, and acts as an irritant and a nucleus for the collection of pus.

This mode is the only one which can truly claim to be surgical, and which gives as little pain as possible. Though not extensively practised in this country, it is used by a few men of my acquaintance. Mr. William Cowan, veterinary surgeon, Galt, one of the oldest graduates of this college, tells me that it his favourite method of operating.

The ox is castrated in all the above ways, and also by ligature of the whole cord and double subcutaneous torsion; either of these methods, or that by the ecraseur, are the most applicable, as they are performed in the standing position, which, owing to the pendulous character of the testicles of this animal, is particularly useful. The operation of double subcutaneous torsion, practised much in the South of France, and highly spoken of by Professor Liautard, who ventures the assertion that it will probably become universal in both ruminants and solipeds, consists of changing the position of the testicle, so that the lower extremity takes the place of the upper; the cord is then subjected to a certain degree of torsion, and the testicle by another half-turn restored to its natural position, there to undergo a process of atrophy, which destroys its power of secretion. When the ecraseur is used on cattle it is always applied over the whole cord, there being so much less tissue composing it than in the horse.

In the sheep special care must be taken not to allow an accumulation of blood in the scrotum, as it seems particularly liable to cause troublesome complications in this animal. The above operations are all admissible, but lambs are generally emasculated by pulling out or scraping the cord. There is also in parts of this country a system of dividing the cord and envelopes by means of a cord passed twice round the scrotum above the testicles, and tied in a peculiar way, more easily done than described: the ends of the cord are then tightened until the tissues give way and the testicles come off. This simple and successful method being almost absolutely bloodless, is in some respects preferable to the others.

In the pig the operation is usually performed by simple excision, care being taken in warm weather that maggots do not get into the scrotum. In large animals the operation by scraping or that by the ecraseur will prove useful.

In the dog the operation is not justifiable, leading to no benefit, but being inducive of laziness and plethora.

In the cat it may be performed with advantage by simple excision.

The rabbit, when he is bred for food, is now also castrated to improve the quality of his flesh and increase his weight. As in most other small animals, simple excision is all that is necessary.

Last of the males comes the rooster, condemned by the epicure to undergo the operation, on account of the value which that individual places upon the flesh of the capon, and the weight which the altered bird can be raised to Lately the quotations for capons in the New York market have been upwards of fifteen cents per pound; they can be raised to over twenty pounds weight.

The testicles in the fowl are situated in the abdominal cavity, below the last three ribs, behind the lungs, anterior to, and below the kidneys. There are two ways of operating; one is to cut in between the last and last but one ribs, and by means of a specially-made pair of forceps extract or break down the testicle, which can be seen from this point when the incision is well spread. The other—the one I prefer—is to cut in behind the last inferior rib,

in the angle that it makes with the internal lateral process of the sternum, the direction being such that the incision will bisect the angle. The attachments of the testicle are then broken down by the index finger, and the organ brought outside. If, however, it should slip from the bend of the finger it matters not, as it will be removed by resolution, and the result remain the same.

Now comes the castration of females—a much more interesting list of operations, both as regards their effects, and the surgical skill required to perform some of them with success. Ovariotomy is performed upon the mare and cow by the same operations; viz., by the flank and the vagina.

In the mare the operation is only justifiable when she is continually coming in season, or, when the period of œstrum coming at natural intervals, she is from her nervous and irritable disposition at such times unable to be used.

With the cow, however, this is very different, and there are many reasons which warrant its performance.

The influence which spaying in cattle has upon the quality and quantity of both milk and flesh, and the ease with which they are produced and kept equable, have led to the constant custom in the Island of Jamaica of spaying these animals from their sixth to their eighth year, that is, after they have had their third or fourth calf. By this arrangement the increase of stock is regulated, the supply of milk rendered equable, and of a higher nutritive value, and the average quality of butchers' meat raised.

In the Western States of America it is performed to a large extent for beefing purposes.

It has been performed in this country by Mr. F. C. Grenside, V.S., of the Experimental Farm, Guelph, on both cows and heifers. Various experiments have been tried there with regard to the effects of different kinds and quantities of food upon these as compared with other animals, an account of their production of milk, its analyses, and their increase in weight kept. With these statistics, however, I will not bother you.

The vaginal operation, by all means the most preferable where it can be performed, was first described by Charlier, and is performed by Mr. Grenside, from whom I may say I learned it, with but slight variations from his method. The operator, having secured the animal in a narrow stall or against the side of a broad one, introduces a smooth stick with a bulb or shoulder about two inches from the point, the whole being about three feet long, into the vagina, and places the point in the os uteri. (Charlier uses a vaginal speculum of complicated structure, which I think is unnecessary.) He now takes a sheathed embryotomy knife in his right hand, both hand and arm being smeared with carbolized oil, and sliding it along the stick until he comes to the os uteri, unsheathes the knife; the left hand now pushes gently but firmly upon the stick, thus pressing the os uteri forward; the right wrist presses downwards; the effect of the combined pressure being to render tense the walls of the vagina. The right hand is now turned upwards, and an incision made directly above the os uteri large enough to admit two fingers, which are generally able to reach the ovaries; should they fail, the incision is to be enlarged and the hand passed in. No difficulty is now experienced in finding the ovary, which is drawn through the incision, and either taken off with Charlier's torsion forceps and nippers, a pair of curved shears, a long ecraseur, or a pair of ecraseur shears, constructed in a similar way to the pincer ecraseur, with long handles.

I prefer shears or ecraseur as being less tedious than the torsion method. Care must be taken not to cut the rectum, which can easily be avoided if the vagina be well tensed while the incision is being made. A laxative diet is advisable for a few days, as the wound in the vagina causes the animal to try

to avoid defæcation. I might here state that the period of lactation is from eighteen months to three years, rare cases having been known where cows have given an undiminished supply of milk for four years, and equally rare ones where they have dried up in six months.

The operation by the flank, resorted to for heifers where there is no room for the vaginal operation, is performed thus. The animal being secured, an incision is made in the superior portion of the left flank, a hand's-breadth from the external angle of the ileum, care being taken not to cut the circumflex-ilii artery by continuing it too low down. The surgeon now inserts his hand into the abdomen, and, turning it towards the pelvis, feels for the horns of the uterus; following these he easily finds the ovaries, which are removed in the same ways as in the vaginal operation. In closing the wound an interrupted or continued suture may be applied, or for preference a crucial one, and in either case the lips of the wound must not be drawn tightly together, but a small space be left between them about a quarter of an inch wide. This is found to be preferable to pulling it up tight, owing to the swelling which invariably takes place, due to the irritation caused by the manipulation, etc.

The preparations required for these operations are laxative food for a couple of days or no food for thirty-six hours previously, and for the vaginal operation a rectal injection before commencing.

The sow is spayed in England to a large extent, but in this country she is seldom subjected to the operation. It is usually performed by the flank; the *modus operandi* is as follows:—The sow is secured upon the right side, and the left flank tensed by drawing back the left hind leg. A horizontal, oblique, or, for choice, a vertical incision is made immediately below the lumbar vertebræ and behind the last rib; it should be two or three inches in length, and without dividing the peritoneum, which is afterwards torn with the fingers. The index finger is now inserted between the vertebral column and the intestines; on finding the ovary it is passed towards the opening, through which it is expelled and held until the other is brought out in like manner; they are then torn or scraped off, and the horns returned to the abdomen. The opening is now closed with the interrupted or uninterrupted suture.

It must be borne in mind that cut-gut cannot be used in swine with advantage, as it absorbs too quickly.

The mode by the linea-alba, as performed in the bitch, is also practised on the sow, and is, I think, an improvement on the old method, as it leaves no mark in the flitch of bacon, and is possibly more quickly and easily performed.

The bitch is operated upon occasionally, the effects being to render house pets unable to annoy their owners by their demonstrations; it also enables hounds to go through a long day's hunting with untiring pertinacity. Unlike others, this species when spayed has not the uncontrollable propensity to become fat.

When a beginner I used to administer an anæsthetic, as I thought it was too cruel to perform it without. I have, however, in several instances carefully compared the results of both ways, and am satisfied that no benefit is derived from it. If, however, others who are as incredulous as I was on this point should wish to use an anæsthetic, chloric æther is better than chloroform, being less depressing. I secure the bitch by tying the hind legs together with a soft cord; I then lay her upon the operating-table on her back and tie her four quarters to the table, then elevate her hind quarters by means of a rope from the ceiling, until her body makes with the table an angle of about forty-five degrees. This position allows the intestines to recede upon the diaphragm and spinal column. I then insert a probe of such

a size that it will not go into the horns of the uterus, but only as far as the body; then cutting in in the linea-alba, so as to make the posterior part of the incision come opposite the end of the probe, I feel for the horns of the uterus, and thus getting the ovary, cut it off with a blunt pair of scissors. Both glands being extracted, the incision is closed with interrupted suture of cat-gut or silk, and almost invariably heals by the first intention.

Castration of the pullet is performed for the same reasons as it is in the male bird, and by the same process, the testicle and ovary being similarly situated. It is necessary only to extract the best-developed gland, which will generally be the left, the other being often entirely absent.

This, then, ends this series of operations, some of which it will be our province constantly to perform, and others, though comparatively seldom called upon to effect, the veterinary surgeon should at least be able to accomplish with success.

NOTES ON THE VETERINARY DEPARTMENT OF THE GERMAN ARMY.

BY A. J. HASLAM, M.R.C.V.S., ARMY VETERINARY DEPARTMENT.

EVERY male person, physically able, must, in Germany, receive training as a soldier, so that his services may be of use in case of war.

The period of service in the "Regulars" is *three* years, but all men who pass examination, reaching a certain standard of education, can get off with only *one* year's service as soldier. The entrance examination for a student of veterinary science reaches the above-referred to standard, and hence he gets off with *only one* year's service as a regular soldier. This year's service of the intending *civilian* veterinary surgeon is served in two parts:—

1st. Six months as a common soldier in a cavalry regiment during his college career, and

2nd. Another six months as "Unter Rossarzt" (in order that they may have an idea of military veterinary surgery), this second part being done after qualifying as a veterinary surgeon.

Very few persons wish to enter the army as veterinary surgeon, as a permanency, because the status and pay of the veterinary surgeon in the German Army is very poor indeed, *and far behind the times.*

However, the intending *military* veterinary surgeon must undergo the following training:—

1st. He must decide, when about seventeen or eighteen years of age, and signify his intention to the proper authority. He must then (before entering a veterinary school) serve *one year* as ordinary private in a cavalry regiment. This is to give him practical knowledge of horses, as seen in cavalry.

2nd. He goes to the Berlin Army School of Farriery for *about nine months.* He daily receives lectures on elementary anatomy, and especially that of the foot, and the rest of the day is spent in practical horse-shoeing, nursing, dispensing, and general management of the sick at the hospital attached. As October approaches, he undergoes an examination in practical farriery and shoeing; when, if successful,

3rd. He goes to a veterinary school on the 1st October, where he receives *books, instruments, uniform, and education* FREE for three and a half years, from the State. (Three and a half years is the minimum period in which a student can get his diploma to practise the veterinary art.)

4th. He then passes his final examination, which is conducted by the Government, obtaining his diploma as veterinary surgeon.

5th. He is then appointed "Unter Rossarzt," with relative rank of

"Wachtmeister" (which corresponds to our troop sergeant)—there is a "Wachtmeister" to each "esquadron" of a cavalry regiment, and there are five "esquadrons" to form a regiment of cavalry. There are *one or two* "*Unter Rossarzts*" to a cavalry regiment.

The Unter Rossarzt is a soldier in every sense, wearing the departmental uniform, with the badges of rank of "Wachtmeister." Yet the Unter Rossarzts do not mess with the non-commissioned or commissioned officers, but form their own mess (with the veterinary surgeons of higher rank). The Unter Rossarzt wears one horseshoe on his shoulder.

The Unter Rossarzt remains such for one, two, or three years, according to the manner he passed his final examination (on obtaining his diploma). If he obtained "*Very Good*," he serves *one* year as "Unter Rossarzt"; if "*Good*," for two years; if "*Sufficient*," for three years.

He next becomes a "*Rossarzt*," with *still the relative rank of Wachtmeister.* There are one or two to a regiment of cavalry.

If there are two "Unter Rossarzts," there is one "Rossarzt"; if there is one "Unter Rossarzt," there are two "Rossarzts"; and hence there are three executive veterinary surgeons to a regiment.

The "Rossarzt" is a soldier still, but, of course, can only command at hospital and forge. He may remain "Rossarzt" from three to ten years, but is generally promoted after five or six years as such.

In *order to be promoted, he must pass an examination* in *professional* and *military duties.* If successful, he becomes an "Ober Rossarzt," and *loses now all military rank.* He is now one of the "Militar Beamte" (military officials). He *wears no badge* of *military rank whatever.* He is a *civilian* in uniform. There is one "Ober Rossarzt" to each regiment of cavalry; he has entire veterinary control over his regiment, and command of the junior veterinary surgeons and veterinary establishments of that regiment. *He is entirely administrative*, and not executive (thus there are to each cavalry regiment one administrative and three executive veterinary surgeons). He is not a member of the officers' mess, but goes *very rarely* on especial invitation.

Some "Ober Rossarzts" are employed in superintending the studies of the pupils and farriers undergoing the preliminary nine months' training at the Berlin Military School of Farriery (already referred to), and also other army farriery schools. The *Ober Rossarzt is then a civilian in uniform.* He is promoted by selection to the next step—*Corps Rossarzt.*

The "Corps Rossarzt" is still one of the "Militar Beamte," or military officials; he wears a crown on his shoulder, which is to show his departmental rank. He is a civilian in uniform. There is one Corps Rossarzt to each army corps (each army corps consisting of three to six cavalry regiments, fourteen to twenty batteries of artillery, one "military train," and five or six regiments of infantry). He is entirely administrative, of course.

The class known as "Militar Beamte," or military officials of the German Army, consists of veterinary surgeons (of rank Ober Rossarzt inclusive), paymasters, and commissariat officers. All of these are really civilians, with distinctive departmental uniforms. They wear no badge of relative rank, and are not commissioned officers. They never go to mess except on express invitation, such as a national fete day.

The department is under the directorship of a *major* (cavalry); although he is not a professional man, yet he is the head of the department. The senior veterinary surgeon of the department is employed at the head of the Berlin Military School of Farriery, and as adviser to the director of the department. (The professional advisers of the director are three—a professor of the Berlin Veterinary School, and the two senior veterinary surgeons of the army.)

The Army Veterinary Department of the Prussian Army (all Germany, except Bavaria, Saxony, and Wurtemburg) consists of:—

15 "Corps Rossarzte"	}	339 total.
102 "Ober Rossarzte"		
134 "Rossarzte"		
88 "Unter Rossarzte"		

This "Prussian" Army is formed of 73 cavalry regiments, 29 "field artillery regiments," and 16 "train battalions."

The Veterinary Department of the Army of Bavaria consists of (*i.e.*, those on active list)—

Corps-Stabs-Veterinäre (Corps Rossarzt)	2	} 46 total.
Stabs-Veterinäre (Ober Rossarzt)	14	
Veterinäre, 1st Classe (Rossarzt)	20	
Veterinäre, 2nd Classe (Unter Rossarzt)	10	

This Bavarian Army consists of 10 cavalry regiments, 4 field artillery regiments, 2 train battalions, and several remount and equitation depots.

The Veterinary Department of the Saxon Army consists of—

Corps Rossarzt ..	1	} 40
Ober Rossarzt....	8	
Rossarzt	18	
Unter Rossarzt ..	13	

This Army of Saxony ("XII. Armee-Corps") consists of 6 cavalry regiments, 2 field artillery regiments, 1 train battalion.

The Army Veterinary Department of the Army of Würtemburg consists of—

Corps Rossarzt ..	1	} 17
Ober Rossarzt....	6	
Rossarzt	10	

This Würtemberg Army (XIII. Armee-Corps) consists of 4 cavalry regiments, 2 field artillery regiments, and 1 train battalion.

Thus the total strength of the German Army Veterinary Department is, 339 + 46 + 40 + 17 = 442, to a total of 93 cavalry regiments, 37 artillery regiments, and 20 train battalions.

The Army Veterinary Surgeon is allowed to do as much civil practice as he likes, so long as it does not interfere with his military duties.

It will be seen that there are four veterinary surgeons to each cavalry regiment, and that the total strength of qualified professional veterinary surgeons is 442.

The veterinary surgeons are *not* associated with the officers of a regiment; they form their own mess, or generally live in the town with their families. (The conditions of the German Army and our own are so different, the total army being in Europe.) Now that two of the veterinary schools are made "Hochschulen" (equal to university), it is very probable that the whole status of the Army Veterinary Surgeon will be altered for the better.

Pay of the Army Veterinary Department.

Unter Rossarzt.—Pay with allowances, 75 marks per mensem (£3 15s.).

Rossarzt.—Pay with allowances, 100 marks per mensem (£5).

Ober Rossarzt.—Pay with allowances, 150 to 175 marks per mensem (£7 10s. to £8 15s.).

Corps Rossarzt.—Pay with allowances, 200 to 225 marks per mensem (£10 to £11 5s.).

Farriers of the German Army.

Farriers, or "Fahnenschneiden," are usually men who have worked in a forge before they attained the age of conscription. All of them are trained at one of the five military farriery schools of Germany. They are taught elementary anatomy, especially of the foot, bandaging, dressing of wounds, and general nursing, as well as practical military horse-shoeing. This course of training lasts six months. The best of these Fahnenschneiden who have received this six months' course are selected and sent to the Berlin Army School of Farriery for *another six months*, to be further trained under the eye of the Senior Veterinary Surgeon directing the establishment. Each of these then becomes an "Ober-Fahnenschneide," and one is sent to each troop (or esquadron) of a cavalry regiment throughout the army. Thus we see that every shoeing-smith receives a course of lectures and training, and every farrier receives a further technical training.

DISEASES AMONG ANIMALS IN THE UNITED STATES OF AMERICA.

THE wonderful progress made by the United States of America is to some extent exemplified by the large volume in which is embodied the report of the Commissioner of Agriculture for 1886. In it we have notices of everything relating to the agriculture of that great country, and much, of course, that is interesting to nations outside it. The portion which will have most interest for the veterinary profession, however, is that in which we find the work of the Bureau of Animal Industry described. The importance of that work may be inferred from the notice given of it by the Commissioner in his general remarks on the whole operations of the Department over which he presides. He says: "The most important work of this bureau has been the investigation and control of the contagious diseases of animals. Our vast areas of productive pasture lands, our enormous crops of grain, and our salubrious climate, have led to a most remarkable development of the flocks and herds of the country. With this increase in the number of animals, their constant importation, and free movement between all parts of the country, contagious diseases have been introduced and disseminated to an alarming extent.

"Most important at this time is the contagious Pleuro-pneumonia of cattle, which, introduced into our Atlantic seaboard States nearly half a century ago, has until recently been kept away from the great central markets of the country. About three years ago the contagion of this disease was carried to Ohio, from Ohio to Illinois, and from Illinois to Kentucky and Missouri. After a continued application of all the authority granted under the national and state laws, the plague was extirpated from Ohio, Missouri, and Kentucky, and it was thought to be also eradicated from Illinois. Unfortunately it has again found to be in existence in and around Chicago in September last. A thorough investigation has shown that the contagion has been disseminated among the cattle in the distillery stables, and among those running at large on the streets and commons of the city and suburbs. Many animals have been exposed. The exact number is not known, but it is certainly very large, and, what is equally serious, the unfenced lands about the city have been infected. Every effort possible under existing laws has been made to locate the diseased animals, and isolate all that have been exposed. With such a plague as this existing in the greatest live-stock centre of the country, threatening to impair both the quantity and quality of our food supply, and increasing the insecurity of our export trade in live cattle and in cattle products, it would

have been most fortunate if every animal exposed to the disease and liable to contract it could have been summarily slaughtered, and contagion thus eradicated. The experience of all countries has been that the malady may be thoroughly and completely stamped out in this way, and that there is no other means by which the bovine species can be protected from it ravages. This disease is one of the most destructive which affects domesticated animals; it does not run a definite course and disappear, but remains in the same herd year after year, and as it frequently assumes a chronic form, there is more than ordinary temptation to dispose of the milk and flesh of diseased animals for human food.

"With a disease of this character at Chicago, it has been truly said that the cattle industry of this country has reached a crisis. There can be no doubt that it will be soon and widely disseminated, unless prompt and effectual action can be instituted for its speedy suppression. Even now it may have been scattered to some extent in the West, and the investigations of the next year will probably bring other outbreaks to light. The matter is a most important one, overshadowing in urgency all others affecting our agricultural population, and of vital interest also to every consumer of beef, of milk, of butter, of cheese. To prevent the spread of this scourge, which has already greatly affected our foreign and inter-State commerce, additional legislation by Congress is now essential.

"Under the authority conferred by the Acts approved May 29, 1884, and June 30, 1886, the Department has co-operated with such States as accepted its rules and regulations for controlling and extirpating this disease. Much valuable work has already been done in Maryland, and the danger of the dissemination of the contagion from that State has been greatly lessened. No work has been done in the State of New York, because it was evident that the appropriation was not sufficient to secure any favourable results there on account of the extent of the infection. The disease also exists in New Jersey, Pennsylvania, and Virginia, but the State authorities have not yet accepted the rules and regulations of the Department for co-operation.

"I greatly regret the necessity of announcing the existence of this dangerous disease over such a wide area, but the serious results to be apprehended from it make it imperative that the truth should be known, in order that such legislative action may be taken as is indicated by the emergency.

"Of next importance among the contagious diseases of animals is the plague of swine, generally known as Hog-cholera. The losses from this malady are estimated at from ten to thirty millions of dollars annually. The investigations of the past year have thrown much light upon its nature and cause; they will make possible more intelligent measures of prevention, and it is hoped that they will soon lead to discoveries which will enable our farmers to guard with more certainty against it.

"In former years the introduction into the herds of our middle and northern States of the Texas or Splenic Fever of the South has caused the loss of many cattle during the hot and dry weather of summer and fall. The information which this Department has collected and disseminated in regard to the nature of this disease, and the districts from which it might be introduced, has enabled our stock-men to protect themselves so effectually against it that the losses of the current year have been inconsiderable.

"The quarantine on cattle imported from other countries has been maintained by this Department, and during the year no cases of contagious disease have been detected among such animals."

NOTES COMPILED FROM VARIOUS AUTHORS ON SOME OF THE MORE COMMON METHODS OF STAINING MICRO-ORGANISMS.

BY J. A. NUNN, F.R.C.V.S., F.R.G.S., ARMY VETERINARY DEPARTMENT, BASUTOLAND, SOUTH AFRICA.

THE progress made in bacteriological research within the last few years, is chiefly due to the discoveries made in Germany of the method of staining micro-organisms with aniline dyes, now generally used. And the object of this paper is to give, in as brief and simple a manner possible, an outline of this process, and the general principles on which bacteriological research is conducted.

The possibility of staining micro-organisms, both in fluids and in sections of solid organs, was first demonstrated by Weigert with carmine and hematoxyline, and afterwards by means of aniline dyes, which are the best; and with certain improvements introduced by Koch, Ehrlich, Gram, Cornil, Babes, and others, is what is now generally used.

The manner in which microbes are coloured, whether in fluids or in sections of organs, is based on the fact that certain dyes have an affinity for certain tissues, such as cell nuclei, and an example of this can be given by Weigert's first process. If a section of an organ containing microbes is placed for a certain time in an aqueous solution of an aniline dye—methyle blue, for example—at first the section will not only be deeply dyed, but what is known to bacteriologists, over-coloured. If this section is placed in what is known as a decolouring agent—that is to say, an agent that has an affinity for the dye, such as acidulated water-solution of carbonate of potash, methylated spirit, or absolute alcohol—the section gradually loses its colour in the following order: the intercellular connective tissue, the protoplasm of the cell, the nucleus, and, if continued long enough, the microbe itself, and so, by carefully regulating the process, specimens can be obtained in which the microbe alone, or the microbe and cell nuclei, only remain coloured. This process is much the same as has been used for a long time past by histologists to demonstrate the existence of cell nuclei.

The aniline dyes that are generally used in bacteriological research are methyle violet, gentian violet, methyle blue, fuchsine, vesuvine, rubine, cocconine, safranine, etc., most of which are soluble in water or absolute alcohol.

Pathogenic micro-organisms are found in both the fluids (pus, blood, sputum, etc.) and solid organs of the body, and the first can be coloured at once, without any preliminary preparation, by merely placing a drop of the fluid to be examined on a cover-glass, then placing a second cover-glass sandwich fashion over it, to flatten it out, removing the two glasses, and allowing the film to dry. A small quantity of aniline dye is placed on this film, and in a few minutes the microbes will be found to be stained. Specimens thus obtained are, however, not satisfactory, being confused and blurred, especially when the fluid is rich in albumen, which causes the dye to be precipitated in patches, and obstructs the view. This Koch has overcome by his method of drying the film, or, as he terms it, "Trockenpræparate." The two cover-glasses being separated, the film is exposed to the air, when the rapid drying of the fluid will fix the microbes on to the glass, and in this state they can be kept for months for future examination. If it is desired to at once stain the specimen, the moisture from the dye will be absorbed so rapidly that the same difficulties will be encountered as described in direct staining, and to avoid which it is first of all necessary to coagulate the albumen. This is done by passing the cover-glass with the film upwards, three times slowly through the flame of a spirit lamp or a

Bunsen's burner. And when so dried, the film does not absorb any more water; in fact, it behaves the same as a section, and can be stained in the same manner. This is done by placing a drop of dye on the side of the cover-glass on which the film is, or better still by pouring some of the dye into a watch-glass and floating the cover-glass on it, with the film downwards, for as long a time, "which varies with different micro-organisms," as is necessary. When stained, the film is washed with distilled water from a wash bottle, dried in the air or over a spirit lamp, and mounted in Canada balsam, when it can be kept as a specimen indefinitely. A cover-glass specimen can be made from any portion of soft tissue in which micro-organisms are suspected, as the spleen, exudative matter, etc., by rubbing a small portion of it on to a cover-glass, and then flattening it out into a film in the same way as is done with a drop of fluid. Such preparations are extremely convenient to determine the presence of microbes, without having to take the trouble or time to harden organs and cut sections.

Sections should be cut from organs as fresh as possible, but that have been previously hardened in alcohol or other suitable medium, and it is needless to say they should be as thin as possible. The dye used, length of time the section remains in it, and after-treatment it is subjected to, varies according to the nature of the microbe it is desired to demonstrate, but the following general directions are applicable to most of them. Most microbes, whether pathogenic or not, stain by Weigert's method of dyeing with an aqueous solution of the aniline dyes, the best being gentian violet, methyle violet, and fuchsine, which all give nearly the same result. They are made from one to two per cent. and quickly decompose, even when a small quantity of thymoil is added; therefore it is necessary that they should be freshly made and filtered before use. A convenient method of making an aqueous solution is to have at hand a concentrated solution of the dye, of which a certain quantity can be added to a certain quantity of distilled water as required. The sections are left in the dye for periods varying from a few seconds to several hours, and are then transferred to absolute alcohol, in which they are left until the tissue is completely decoloured, only the microbes being left visible. This is the most delicate part of the process, and only can be learned by practice, as it is necessary to leave the section in it long enough to remove the dye from the whole of the tissue except the micro-organisms, and yet it must not be left too long or they will be decolourised also. The section is then cleared up by placing it in oil of cloves, cedar, or bergamote, the excess of which is removed by blotting paper, and then mounted in Canada balsam, prepared with benzole, or xylal. If oil of cloves is used care must be taken that the section is not left in it too long, a few seconds being enough, as it has a great affinity for aniline dyes, and if care be not taken it will remove the colour from the organisms as well as the tissue. Methyle blue in an aqueous solution is particularly recommended by Ehrlich, as it differs from other aniline dyes, or it does not over-colour sections, even if they are left in it for a considerable time. Lœffler's method gives even better results than Ehrlich's; the formula is as follows :—

Saturated alcoholic solution of methyle blue	... 30 cc.
Aqueous solution of caustic potash, 1/1,000	...100 cc.

This dye is particularly recommended by Lœffler for staining the organisms of Typhoid, Glanders, Diphtheria, and Recurrent Fever.

There are certain micro-organisms that comport themselves in a characteristic manner with certain reagents, both colouring and decolourising, the best known being the bacillus of Tuberculosis. Koch demonstrated the presence of this bacillus by the following method of staining. The sections or cover-

glass films were placed for from twenty to twenty-four hours in the following dye:—

Concentrated alcoholic solution of methyle blue	1 cc.
Solution of caustic potash, 10 per cent.	2 cc.
Distilled water	...200 cc.

The section, which is coloured a deep blue, is washed in distilled water, then placed for fifteen minutes in a concentrated aqueous solution of vesuvine, washed again in distilled water, and examined in the usual way with an Abbe condenser, when the bacillus of Tuberculosis will appear blue and any others, "such as might be expected to be found in expectorated mucus or sputum," as well as the cell nuclei, brown. This is one of the first and best-known instances of a particular bacillus taking a particular stain.

Ehrlich's method, which is very simple and certain, is, with slight modifications and alterations that have been introduced by Koch and Weigert, as follows:—2 cc. of aniline oil are added to 50 of distilled water, mixed together by frequently shaking for several minutes, and then let stand for five more, and filtered through a paper moistened with distilled water, so that any drops of oil not dissolved may be absorbed. To the clear filtrate add 5 cc. of concentrated alcoholic solution of gentian violet or fuchsine, add 5 cc. of absolute alcohol, shake together and filter; this solution will keep good for eight days. Sections of Tuberculous organs on cover-glass films are placed in this solution for from twelve to twenty hours, or if raised to 40° Cent. (104° F.) from one to two hours. When removed from the dye the preparations are placed in a solution of 3 or 4 to 1 of nitric acid and water, or in a 2 to 3 per cent. solution of hydrochloric acid in absolute alcohol. They are then washed in distilled water, afterwards in absolute alcohol, cleared up in oil of bergamote, and mounted in Canada balsam, when the section will be colourless, only the bacillus retaining the dye.

In Gram's method, the section or cover-glass film, is placed in Ehrlich's solution of gentian violet for from one to two minutes. If sections they must be transferred to the dye from absolute alcohol, not water. When removed from the dye, they are transferred to Lugol's solution, the formula of which is as follows:—

Iodine	2 grams.
Iodide of potassium	2 „
Distilled water	...200 „

Transfer to absolute alcohol, when the section gradually loses all colour, and if necessary change the alcohol after ten or fifteen minutes. Clear up with oil of cloves, cedar, or bergamote, and mount in Canada balsam, when the organisms will appear an intense blue against the colourless tissue. The iodine acts by fixing the colouring matter in the organisms and preventing their decolourisation by prolonged action of alcohol. Another plan is to place the section in alcohol, when removed from the dye, decolourise, and then place in Lugol's solution, but the results are not so satisfactory as if they are at once transferred from one solution to another.

Nearly all pathogenic micro-organisms, the bacillus of Anthrax, Tuberculosis, and Leprosy, the pneumococcus, and organisms of suppuration, Erysipelas, Actinomycosis, etc., stain by this method, only the bacillus of Tuberculosis must be left in the dye for about twenty-four hours. It is as well to remember that with Gram's method the best results are obtained with gentian violet, with other colours—fuchsine, for example—the results are not so satisfactory.

It is often desirable in a preparation to stain the histological elements differently to the microbes, such as the cell nuclei, for example, in order to

more correctly determine the presence of the organism by its contrast in colour. To do this, the section when brought out of the first dye and decolorised, is passed rapidly through a solution of a dye that will give a marked contrast to that which the microbe is coloured with, as, for example, methyle blue or gentian violet in contrast with carmine or rosine.

A good plan with sections stained by Gram's method, is to "commence" by staining the tissue. This is done by first placing the section for several minutes in picro-carminate of ammonia, then washing in distilled water and alcohol in the usual manner, then dyeing by Gram's method; when mounted it will be found that the carmine will colour the cells and tissue red in contrast to which the microbes will be a very dark blue. The bacillus of Tuberculosis can be coloured in the same manner only by substituting Ehrlich's for Gram's method.

Micro-organisms should always be studied with a water, or better still an oil immersion lens, and Abbe's condenser, without a diaphragm, and a plain mirror. By this method of illumination the details of the tissue disappear, but the dyed parts, "viz., the micro-organisms," appear most distinctly. In this paper no theories are given, nor is it attempted to explain the action of dyes or reagents. All that is attempted is to lay before the busy practitioner some of the simpler methods of staining micro-organisms for the purpose of diagnosis. Furthermore, it is merely a compilation from various authors—not original.

THE HIGHLAND AND AGRICULTURAL SOCIETY'S PLEURO-PNEUMONIA INQUIRY.

THE Directors of the Highland and Agricultural Society appointed a Committee last year to conduct an inquiry in regard to Pleuro-pneumonia, which was at that time very widespread in Scotland, and the ravages of which were being severely felt by farmers. The Committee consisted of Mr. Paterson, of Birthwood (convener); the Hon. R. Baillie-Hamilton, Mr. Maxwell, yr. of Munches; Mr. Marr, Cairnbrogie; Mr. Murray, Catler House; Mr. Middleton, Clay of Allan; Mr. Stirling, of Kippendavie; and Dr. Aitken, the Society's chemist. They invited the co-operation of those in Scotland who were likely to be best informed regarding the nature of the disease, or who had had practical experience of it among their herds; and the principals of the three Scottish veterinary colleges, together with other veterinary surgeons, representatives of local authorities, and a number of dairymen and stock owners, were asked to give evidence. The inquiry took place last summer, the following seventeen witnesses being examined:—Mr. Thomas Elliot, of Blackhaugh, Galashiels; Mr. Richard Rutherford, F.R.C.V.S., Edinburgh; Mr. William Cairns, Fountainbridge, Edinburgh; Mr. Robert H. Runciman, 7, Montgomery Street, Edinburgh; Mr. William Cooper, Sunnybank Cottage, London Road, Edinburgh; Mr. James Stenhouse, Jun., Turnhouse, Cramond; Mr. James Biggar, Grange, Dalbeattie; Mr. Patrick Webster, of Westfield, Forfar; Mr. Robert Rutherford, F.R.C.V.S., Edinburgh; Principal Williams, New Veterinary College, Edinburgh; Principal Walley, Dick's Royal Veterinary College, Edinburgh; Principal M'Call, Veterinary College, Glasgow; Mr. Robert Reid, M.R.C.V.S., Inspector under the Cattle Diseases Act, and Superintendent of Slaughter-houses, Leith; Mr. George Philip, M.R.C.V.S., St. Andrews; Mr. R. O. F. Stewart, Montrose; Mr. Andrew Spreull, M.R.C.V.S., Dundee; and Dr. Wohltmann, Halle, Prussia. An epitome of the evidence given before the Committee has been prepared and supplied to the Privy Council, and it will be published in the forthcoming volume of the Transactions. The following is an outline of the views and practical experience of the different witnesses examined:—

Mr. THOMAS ELLIOT, Blackhaugh, Galashiels, said he had had about fifty

years' experience of Pleuro-pneumonia, and it had always been got from Irish cattle, the disease being contracted during transit. He believed it was due very much to the holds of the vessels in which cattle had been conveyed not being properly cleaned. He had seen the disease break out in the cattle six months after they had been brought from Ireland to this country. When he abandoned Irish cattle, the disease disappeared, and his opinion was that, not being indigenous in this country, it could not exist in Scotland if proper steps were taken. He thought the transit of Irish cattle the worst in the world, and he recommended an improvement in that direction.

Mr. RICHARD RUTHERFORD, F.R.C.V.S., Edinburgh, advised, as an effectual method of dealing with an outbreak of Pleuro-pneumonia, the slaughter of all affected and suspected animals, and the immediate inoculation of the remainder. Successful inoculation conferred immunity, and he had never known an animal so inoculated to contract the disease, although it had been subjected to subsequent outbreaks. Pleuro-pneumonia was not discernible in the early stages. He thought an inspector should have absolute power to put down anything he suspected. A cow that had recovered from Pleuro-pneumonia was capable of disseminating the disease for twelve months afterwards. Out of some hundreds of animals lately inoculated he had not lost one. Calves should not be inoculated under three months. His opinion was that the disease could be eradicated by means of inoculation. He had known infection carried to animals in another field two hundred yards distant. Inoculation discovered the disease in fourteen days. Animals incapable of inoculation should be destroyed as suspected. For years Edinburgh was a hotbed of disease, but now it was one of the healthiest parts of the kingdom, and that because the disease had never gone beyond two or three cases. He did not think they had sufficient powers. The system of stamping out by slaughtering, and isolating the remaining animals, would not be as effectual as inoculation, because the animals isolated had been exposed to the disease, and the incubative period might be six months. He did not think it was at all necessary to have compulsory inoculation throughout the whole country. It was more necessary to recognise the fact that inoculation applied to Pleuro-pneumonia reduced it from a disease dangerous and rapidly spreading to a disease easily handled. If inoculation was pursued in Ireland especially, where the disease was constantly in existence, with the same success as it could be done in Scotland, there would be little Pleuro-pneumonia; and when it did exist it could be dealt with by a skilled veterinarian, and it would become a matter of not the slighest consequence whatever. The inspection in Ireland was very bad; it was of a "kid-glove" character. His experience led him to advise the adoption of protective inoculation along with compulsory slaughter.

Mr. WM. CAIRNS, dairyman, Fountainbridge, said that for ten years previous to 1878 he had Pleuro-pneumonia at his place. He had had no outbreak for three years, and this he attributed to inoculation The cows which he had not inoculated died, while those that were inoculated remained healthy. He was satisfied that inoculation was a sure preventative.

Mr. R. H. RUNCIMAN, dairyman, Leith Walk, said he had had three outbreaks during the eight years in which he had been engaged in dairying. He had got the cows inoculated, and there had been no fatal results. In one case, however, an inoculated animal took Pleuro four or five months afterwards.

Mr. WILLIAM COOPER, dairyman, Edinburgh, said he had been engaged in the business since 1859, and he had never had an outbreak since he began to inoculate in 1878. Before that he was scarcely ever free from the disease. His inoculated cows did not infect the fresh stock.

Mr. JAMES STENHOUSE, jun., Turnhouse, said he had a dairy farm, and had

had one outbreak of Pleuro-pneumonia. Seven of the cows were slaughtered, and the remaining seventy were inoculated, and all got better. After a lapse of several days he placed fresh stock among those cows, and none of them took the disease. His opinion was that when inoculation failed as a preventative it was entirely the fault of the operator.

Mr. JAMES BIGGAR, Grange Farm, Dalbeattie, spoke to an outbreak on Chapelton Farm in 1886. The diseased animals were slaughtered, and the remainder that had been in contact with them were inoculated, and did not communicate the disease. Some time afterwards the inoculated animals were mixed with others that had not been inoculated, and all remained healthy.

Mr. PATRICK WEBSTER of Westfield, convener of the Local Authority of the county of Forfar, said he had been brought a good deal in contact with outbreaks of Pleuro-pneumonia, and he thought it desirable that an exhaustive inquiry in regard to it should be made. He also spoke as to the successful results of inoculation. As showing the comparative expense of inoculation and stamping out in Forfarshire, he stated that, when their policy was that of inoculating, the compensation paid for slaughtered cattle amounted to £760 14s. 1d., and £37 9s. for animals killed because of being in contact—together, £798 3s. 1d. When the policy was changed by the Privy Council they had to pay as compensation for diseased cattle slaughtered £519 2s., and for cattle in contact £1,126 7s. 9d., or in all, £1,645 9s. 9d. They had been compelled to slaughter 117 animals that had been in contact, but which, if inoculation had been carried out, might not have taken the disease.

Principal WILLIAMS, New Veterinary College, Edinburgh, gave it as his opinion that Pleuro-pneumonia was incurable, and he would give a diseased animal no treatment except the pole-axe. He believed it possible to carry the infection a distance of 200 to 300 yards, but he did not think it possible for the disease to be transmitted by man to animals. He would not say that inoculation gave immunity to an animal for the remainder of its life, but he would limit the period to two years, or, practically, for the ordinary life of a feeding beast. His opinion was that the best way to treat an outbreak of Pleuro-pneumonia was to slaughter everything that was suspicious, and inoculate all the rest. He would not prescribe inoculation for a healthy herd. He thought all local authorities should be abolished, and that the veterinary inspector should have power to order slaughter without consulting the local authority. He should say that stamping out was the safer way, but it was expensive. With their present knowledge, he would recommend the inoculation system, so as to keep Pleuro-pneumonia under control.

Principal WALLEY, Royal (Dick) Veterinary College, said he had inoculated many animals with both good and bad results, but he thought the bad results might be largely attributed to local causes. The result of his observations generally had been that, if the animals were inoculated immediately the disease broke out, and if the disease was detected at the earliest stage of the outbreak and the animals immediately inoculated, it was very successful in preventing the further spreading of the disease among them. If, on the contary, the disease had been hidden, and the animals exposed for weeks or months to the infection, it was sometimes very unsuccessful. He instanced cases in which cows had become infected although inoculated. A good deal of the disease had been brought to Scotland from Dublin and Cumberland, and there was no doubt that the restrictions there had done good.

Principal M'CALL, Glasgow Veterinary College, said he had had two outbreaks of Pleuro on his farm, and on the first occasion, twenty years ago, he tried isolation, but half his stock died, all having taken the disease in a very bad form. Having described in some detail the treatment for Pleuro-pneumonia, he mentioned an instance in which inoculation had been tried, and where the disease had broken out afresh afterwards. He approved of inocu-

lation, provided it was performed on the animal before it had been exposed to the infection. He did not think an animal slightly diseased would be saved by inoculation, or that the progress of the disease would be stayed. He rather thought that in most cases inoculation would intensify the natural malady. For inoculation to be of use to the country it should be made as compulsory to inoculate calves as it was to vaccinate children. The difficulty that would arise would be as to procuring a sufficient quantity of lymph; but if inquiry was carried out on these lines it would be attended with valuable results. He would recommend the compulsory inoculation of all calves in the country, because he would expect that in a few years the disease would be got rid of. Pleuro-pneumonia, like Small-pox, must run its course. If a few thousands of pounds were set apart for it, a great deal could be made out experimentally which was at present a matter of opinion and dispute. Another thing to see was whether lymph could be cultivated so as to make it a safe operation, if they could have a quantity in a capillary tube. If that could be done, there would be no difficulty in getting rid of the disease by inoculating the calves. If Parliament would vote a sum of money for a series of experiments it would be of great importance.

Mr. ROBERT REID, Inspector under the Cattle Diseases Act, and Superintendent of Slaughter Houses, Leith, said his experience extended back to 1864. During that period, and before inoculation was practised, the mortality from Pleuro-pneumonia was about 14 per cent. Since inoculation had been performed the death-rate of cattle from the disease had only been 2 per cent. He regarded the great improvement that had taken place as being entirely due to inoculation, which he looked upon as a great and sure preventative. He thought that no animal that had been successfully inoculated could ever take Pleuro-pneumonia afterwards. He was of opinion that the inspection of Irish cattle should be inquired into, as the disease was being continually brought over from Ireland.

Mr. R. O. F. STEWART, Montrose, described a case of Pleuro-pneumonia in a healthy-looking cow with encysted lung, and which had communicated the disease to other animals without its being observed for four months.

Mr. ANDREW SPREULL, F.R.C.V.S., Dundee, gave it as his opinion that it was scarcely possible to carry the infection of Pleuro-pneumonia by litter or food. If animals were inoculated before the expiry of the incubative stage there would be no disease. He would not, however, inoculate all young stock, but only when an outbreak occurred. He had found inoculation quite as certain to exterminate the disease as the process of stamping out. Inoculation would cause animals that were not perfectly healthy to show the disease within three weeks. He would inoculate every animal on an infected place, and he believed that there was less danger in selling animals that had been inoculated than in selling out stock that had had the disease amongst them after the statutory period of fifty-six days. He was of opinion that inoculation should be made compulsory. His experience was that those who had not practised inoculation were against it, and those who had practised it were uniformly in its favour. He did not consider the fifty-six days' restriction adequate without inoculation.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

MEETING OF COUNCIL HELD MAY 29TH, 1888.

Sir HENRY SIMPSON, the President, in the Chair.

Present:—Professors J. Wortley Axe, G. T. Brown, C.B., W. Duguid, W. Pritchard; General Sir Frederick Fitzwygram, M.P.; Messrs. J. Roalfe Cox, E. C. Dray, Thomas Greaves, W. Mulvey, A. H. Santy, T. H. Simcocks, James F. Simpson, Peter Taylor, W. Woods, F. W. Wragg, the Secretary, and Mr. C. Thatcher (Solicitor *ex officio*).

The SECRETARY read the notice convening the meeting.

The PRESIDENT said that it was his painful duty to announce the death of Mr. Harpley, whose loss he was sure every member of the Council would deeply deplore. Mr. Harpley had been elected to the Council in 1860, and had continued in office until the day of his death. He was a member of the Board of Examiners, and had accepted the post of President of the College in 1872. He was also one of the Governors of the Royal Veterinary College, and a member of the Veterinary Committee of the Royal Agricultural Society. He (the President) would move "That an address of condolence be forwarded to the late Mr. Harpley's nearest relative, his sister, expressing the Council's regret at her loss, and their high appreciation of his services."

Mr. DRAY seconded the motion, which was agreed to.

The PRESIDENT stated that the Charter required that, within one month from the annual meeting, a Council should be held for the purpose of electing a President, Vice-Presidents, and the Secretary and Registrar, and they were assembled for that purpose. It had been usual to transact that business only, but until they proceeded to elect their Vice-Presidents the Council was complete, and any business could be transacted. He was further advised that a special meeting to elect the Committees was unnecessary, and that, in the event of only one nomination being made for President, a ballot was unnecessary. He had asked Mr. Thatcher to be present in case any members of the Council might wish to ask any questions as to the mode of procedure.

Mr. PETER TAYLOR thought the fact of his not being a member of any Committee ought to have been mentioned in the annual report. As the legal adviser was present he would like to ask whether it was legal for the Council to vote a sum of £25 towards the expenses of inviting distinguished guests to their annual dinner.

The PRESIDENT begged to assure Mr. Taylor that the expense of inviting distinguished guests to the annual dinner would not fall on the College funds.

Mr. THATCHER thought such an expenditure was legal.

Mr. PETER TAYLOR moved, and Mr. DRAY seconded, "That the minutes of the previous meeting be taken as read."

Mr. J. ROALFE COX moved as an amendment, seconded by Professor PRITCHARD, that the minutes be read.

The SECRETARY then read the minutes of the previous meeting.

Mr. J. ROALFE COX objected to the minutes as being incomplete, stating that his own remarks with regard to a certain explanation he had given of a protest had been apparently entirely suppressed.

The PRESIDENT said that at the last meeting a resolution was passed that only an abbreviated report should be made of the proceedings. The report had been sent to him; he had exercised a discriminating hand in its abbreviation, and was quite prepared to take the responsibility. He assured the Council that the minutes that had been read was a fair and accurate representation of what had been said by everybody.

Mr. JAS. F. SIMPSON moved that the minutes of the previous meeting be confirmed.

Mr. PETER TAYLOR seconded the motion, which was agreed to.

Absentees.

The SECRETARY said that he had received letters of apology from the following gentlemen regretting their inability to attend the meeting:—Messrs. Storrar, Walley, Barford, Whittle, Carter, McCall, and Dr. Fleming.

Correspondence.

The SECRETARY read a letter from Mr. Branford.

It was resolved that the letter should lie upon the table.

A letter was read from Mr. A. W. Sisson, and the Secretary was instructed to inform him that the Principal of any veterinary school in the United Kingdom would give him the desired information.

Report of the Registration Committee.

The SECRETARY read the report. He said that cautionary letters would be sent, and a month allowed for a satisfactory reply. If no reply were received within that time further steps would then be taken.

Mr. PETER TAYLOR moved the adoption of the report, with the exception of that part relating to the expulsion of a registered practitioner, which was ordered to stand over, there not being three-fourths of the whole Council present as required by the Veterinary Surgeons Act.

Mr. DRAY seconded the motion, which was agreed to.

Report of the Finance Committee.

The SECRETARY read the report, which, on the motion of Mr. PETER TAYLOR, seconded by Mr. WOODS, was agreed to.

The PRESIDENT called attention to the fact that the outside of the building required to be painted. He suggested that the matter be referred to the House Committee with power to act, the Secretary to obtain an estimate.

Mr. JAMES F. SIMPSON thought that the wisest course to adopt. He hoped that the back entrance of the College would be made use of during the repairs, for the purpose of asserting their right.

The resolution was agreed to.

Motion by Mr. James F. Simpson.

This motion was by consent postponed to the next quarterly meeting of the Council.

Election of President.

Mr. DRAY said he had great pleasure in proposing Professor Pritchard as President of the College for the ensuing year. Professor Pritchard stood so high in the profession that any comment from him would be superfluous. He had been one of the most popular professors of the Royal Veterinary College at Camden Town, and the students vied with each other to pay him the most attention and respect. He (Mr. Dray) might remark *en passant* that when Professor Pritchard sent in his resignation the Governors of that Institution very reluctantly accepted it, and urged him not to resign his post. With all due respect to the Council he considered Professor Pritchard's claim to the Presidentship had been too long neglected; *ergo* let them redeem the past by now unanimously electing him, feeling sure that he would carry out the duties in an efficient manner, and advance the interests of the profession.

The resolution was carried by acclamation.

The Presidential chair was then vacated by Sir Henry Simpson, and was taken by Professor Pritchard.

The PRESIDENT thanked the Council for the honour they had done him in unanimously electing him as their President for the coming year, and he would, he said, to the best of his ability perform the duties which pertained to the office. To be elected President of the College was the highest honour that the profession could confer upon any one of its members; and though the President's chair was not always a bed of roses, it would be his best endeavour to steer the ship clear of the enemies of their Corporate Body. He again thanked the Council for the compliment paid to him, and he trusted when the time came for him to resign his office that there would be no regrets on the part of anyone that he had that day been elected President.

General Sir FREDERICK FITZWYGRAM proposed a vote of thanks to the retiring President, Sir Henry Simpson, for the able and efficient manner in which he had fulfilled the duties of his office. Sir Henry had, he said, carried with him throughout the confidence of the Council, and his year of office had been marked by a great advance in the interests of the profession

Professor BROWN seconded the motion, which was carried unanimously.

Sir HENRY SIMPSON thanked the Council for their kind acknowledgment of his services as President during the past year. A peaceful revolution had, he thought, been accomplished. There had been perfect good feeling with regard to the passing of the new bye-laws, the new rules of examination, and the election of the new Examining Board; and although it could not be expected that all would agree that the changes were right and judicious, the view of the majority had been adopted, and he felt sure that every member of the Council, whether agreeing with the alterations or not, would give loyal support to existing institutions. He should always consider any experience that he might have gained during his year of office at the disposal of the gentleman the Council had just elected should he wish to avail himself of it.

Election of Vice-Presidents.

The following gentlemen retired by rotation from the office of Vice-Presidents:—Messrs. Jas. F. Simpson, Simcocks, Woods, Brown, Santy, and Briggs.

It was stated by Mr. WRAGG that Mr. Santy, having retired from practice, did not desire his name to be put up for re-election.

The following nominations were made:—Mr. Cartledge and Mr. Woods by Mr. James F. Simpson, Mr. Clement Stephenson by Mr. Mulvey, Mr. Briggs by Mr. Wragg, Mr. Simcocks by Mr. Greaves, Mr. Wilson by Professor Brown, Mr. William Hunting by Mr. Mulvey, and Mr. Banham and Mr. Stevens by Mr. J. Roalfe Cox.

The ballot having been taken, the following gentlemen were declared to be elected:—Messrs. Simcocks, Briggs, Cartledge, Woods, Stephenson, and Wilson.

Election of Secretary and Registrar.

Mr. DRAY, said that, owing to his long association with the worthy Secretary, Mr. A. W. Hill, he was perhaps better able than any other member of the Council to speak of his abilities. He possessed qualities and attributes which few gentlemen in his position could boast of; in fact, he possessed in a remarkable degree the *suaviter in modo* with the *fortiter in re.* Mr. Hill's duties had been very much increased during the past year, but he had applied extra ability and assiduity, and had surmounted all the difficulties.

Any further observation from him (Mr. Dray) would be supererogation, and he had great pleasure in proposing the re-election of their worthy Secretary and Registrar.

Mr. WRAGG seconded the motion.

Sir HENRY SIMPSON had great pleasure in endorsing what had fallen from Mr. Dray. There was no question, he said, that the duties of the Secretary of ten years ago and of the Secretary of to-day were as different as light was from dark. He was perfectly sure that Mr. Hill would prove in the future as he had done in the past—that he was quite capable of discharging the duties connected with the important office which he filled.

The resolution was unanimously agreed to.

Mr. A. W. HILL, Secretary, in a few appropriate remarks, thanked the Council for his re-election.

Mr. J. ROALFE COX said that, owing to the lamentable event they had to deplore in the death of Mr. Harpley, a vacancy had occurred in the Council. It was in the power of the Council temporarily to fill that vacancy, and he had great pleasure in nominating, as a fit and proper person, Mr. Banham, whose name happened to appear next for election on the Council.

Mr. DRAY seconded the nomination.

Mr. JAS. F. SIMPSON doubted whether such a nomination could be made at that meeting, and he moved as an amendment that the vacancy be not refilled.

Mr. GREAVES seconded the amendment.

Sir HENRY SIMPSON was of opinion that the election of a new member to the Council at that meeting would be *ultra vires.*

Mr. SIMCOCKS suggested that the consideration of the question be postponed until the next quarterly meeting in July.

Mr. J. ROALFE COX said that if such a course were adopted he would withdraw his resolution.

Mr. PETER TAYLOR seconded Mr. Simcocks' proposal, which was agreed to.

Election of Treasurer.

Sir HENRY SIMPSON said that hitherto the Council had annually re-elected the Treasurer. He was instructed, however, that such a course was not necessary. The office was a permanent one, unless the Council chose to remove the officer appointed. He should be sorry for the Council to separate without an expression of their high appreciation of the Treasurer's services. Everyone who knew Mr. Dray knew what an indefatigable man he was in looking after the finances of the College. He trusted the Treasurer would see his way to retain the office he had held for so many years, which would undoubtedly not only be to the advantage of every member of the Council, but to the profession at large. He had great pleasure in proposing a hearty vote of thanks to Mr. Dray for the manner in which he had performed his duties as Treasurer to the Royal College during the past year.

Mr. GREAVES seconded the motion, which was carried unanimously.

Mr. DRAY thanked Sir Henry Simpson for his very complimentary remarks and the Council generally for the way in which they had indicated their appreciation of his services. Owing to his now getting into years he regretted that his health was rather uncertain, but if the Council would allow Mr. Wragg, who had kindly offered to act as his *locum tenens* should his health fail, to act for him, he would gladly continue in office.

Mr. JAS. F. SIMPSON gave notice that he should at the next meeting move the appointment of a Committee to be called "The Report and Election Committee." He should suggest that, amongst other duties, the Committee should arrange the names upon the voting papers, and their disposal.

Mr. J. ROALFE COX said that much had been said in Mr. Hill's praise; and during that very especial time of jubilation, when in all quarters compliments had been paid and honours bestowed, he hoped the Council would not be content with merely empty words. The College, he thought, could well afford it, and he would suggest that some honorarium, as a memento, which would be highly appreciated, be presented to Mr. Hill in recognition of his services and good faith to the profession generally.

The subject was referred to the Finance Committee.

Mr. JAS. F. SIMPSON moved a vote of thanks to the Chairman, which was seconded by Mr. MULVEY, and agreed to.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

THIS Society held an ordinary general meeting on May 3rd, Mr. Samson, vice-president, being in the chair. The Fellows present were Professors Axe, and Shave, Messrs. Caton, Elworthy, Farrow, Herron, Hunting, Hurndall, Lowe, Moore, Mulvey, Oatway, Overed, Rickards, Rogers, Rogerson, Roots, Rowe, Shaw, Singleton, Willis, Woodger, and the honorary secretary, and Messrs. Morgan Evans, A. E. Gostling, and Somers attended as visitors.

Letters were received from Professor Walley and Mr. J. Roalfe Cox regretting their inability to attend. The minutes of the previous meeting having been read and confirmed, Mr. William Shaw, M.R.C.V.S., of Stoke Newington, was unanimously elected a Fellow of the Society.

The consideration of Mr. Hunting's paper on "Hereditary Disease and Veterinary Opinion" was then proceeded with, and Mr. VILLAR, after reading a telegram from the President, who was unavoidably prevented from being present, said that he could not agree with the essayist, as to there being no form of hock predisposed to "curb," he being of opinion that the formation known as "Sickle-hock" is especially liable to become affected. As regards the transmissibility of Spavin he had known an entire horse affected with that disease, who produced many foals which developed Spavins at an early age. Another entire horse which he knew had a large bony enlargement of the coronet, the result of a "fractured pastern"; he got a number of foals, but none of them had become affected with Ringbones; and yet another stallion had Canker in all four of his feet, but up to the present none of his stock, although they had been at work for some years, were suffering from Canker.

Mr. MULVEY could not consider Grease as a form of Eczema, and related the case of a stallion which had "Grease" in three of his legs, and almost all his progeny suffered from that disease.

Mr. CATON bore out Mr. Mulvey's view of the transmissibility of Grease, but could not agree with Mr. Hunting as to Curbs being non-hereditary, and in proof quoted the case of a horse now living which had what is known as "Curby-hocks," and ninety per cent. of whose foals become affected with Curb. That Spavin and Roaring are hereditary diseases he had personal proof.

Mr. SAMSON pointed out the necessity of distinguishing between "simple" and "specific" Ophthalmia in stallions exhibited at shows; the specific form was undoubtedly hereditary, but simple Ophthalmia was of no consequence. He would disqualify any horse having such malformed hocks as to predispose to Curb, as he was convinced of the hereditary nature of that very troublesome malady, as he was also of the transmissibility of conformation of the feet, and he considered an entire horse with very flat feet should not be used at stud, and quoted an instance where a stallion who had a "clubbed" off fore foot, which, to his knowledge, got three foals with "clubbed" off fore feet. He (Mr. Samson) held a very strong opinion that "Stringhalt" is hereditary.

Mr. ROGERSON considered too much stress had been laid on the hereditary nature of Ringbone; unquestionably that disease was at times hereditary, but he thought in far more cases it was a direct result of concussion on our hard roads.

Professor AXE very much regretted that he had not had the opportunity of listening to Mr. Hunting's paper. He was sure, however, that Mr. Hunting's large experience would enable him to present the subject treated of in an interesting and instructive light. The question of hereditary disease had been brought forward at a most opportune moment, inasmuch as it had for some time past attracted a considerable amount of attention from horse-breeders and other persons specially interested in the welfare of our studs. The subject was one of supreme importance, and deserved all the consideration the veterinary profession could bestow upon it. If there was one fact more clearly realised and acknowledged by the veterinary profession than another it was the truth of heredity in relation to disease—the power of animals inheriting defects to transmit those defects to their progeny. It was also interesting and important to bear in mind that not only were diseases and deformities of descent capable of transmission, but others accidentally induced were likewise communicable from parent to offspring. He had that morning been speaking with Mr. Clement Stephenson, of Newcastle, than whom he knew no more shrewd observer, and he had told him (Professor Axe) that he had known mutilations inflicted on the ears of animals for the purpose of "marking" to be handed down from the parent to the offspring. About two years ago a large horse-breeder in Lincolnshire called his (Professor Axe's) attention to a colt which had sustained considerable damage to the off-shoulder resulting in deformity. A few weeks ago the same gentleman had informed him that one of the colts sired by this animal had inherited the defect acquired by the parent. This, he thought, was the kind of evidence which was so much to be desired, and which the profession should seek to extend. Mr. Hunting submits the question, "Can we determine merely by the symptoms when a disease is hereditary, and when it is not?" He (Prof. Axe) thought we could not, but there were many cases in which the evidence of heredity was very strongly marked, if not actually conclusive. He referred to those cases of multiple exostoses—the co-existence of splints and spavins, and, above all, to the symmetry of bony growths and articular diseases in corresponding limbs.

It not unfrequently happened that splints appeared on the legs of young horses, and were found to occupy precisely the same position on one limb as on the other; they were, moreover, the same size and form, and, in a large number of cases, sprung up during the growth of the animal without inducing lameness, and, indeed, appeared to have become a fixed part of the organisation. Examples of this kind he regarded as bearing all the manifestations of hereditary transmission. Those, however, who have the best interests of our horse population at heart will not stop to demand such evidence as this, but must be prepared to condemn as unfitted for stud purposes all animals suffering from disease known by experience of another kind to be hereditary. To do a great right may necessitate the infliction of a little wrong, and he is a poor and impotent legislator who would shrink from the latter alternative in the face of the vast benefits to be conferred on our horse population by prompt and vigorous measures of prevention.

In referring to the official action of veterinary surgeons at agricultural shows, Mr. Hunting had raised a very important question. No doubt it would be a great boon if the profession could be relieved from the responsibility attaching to the exercise of a strictly judicial function, but he (Professor Axe) should be very sorry indeed to see the profession relinquish its position until a higher authority had been set up. It was manifestly in the interest

of our horse stock, and in the interest of the country, that for the present at least the veterinary expert should continue to exercise a judicial control over the rewards of merit at our horse exhibitions.

Professor Axe urged the desirability of examining all stallions exhibited at shows, and awarding certificates of soundness to such as were found to be free from hereditary disease; by this means, he said, breeders would know what to use and what to reject. He would also like to see the same system adopted towards mares.

With one or two exceptions he agreed with the formula laid down by Mr. Hunting as to what should and what should not constitute unsoundness.

Mr. OATWAY said his experience showed him that Laminitis was not transmissible; a horse he knew named "Dundee" had Laminitis so badly that he had to be lifted on to his feet when a mare was brought to him. Another named "Billy Barlow" had it as badly; the last season that "Billy Barlow" served he got sixty foals; he knew many, and had owned several of these foals since they were grown up, and in no instance that he knew of had one been affected with Laminitis.

Mr. HUNTING in reply said, he felt that the members present had not done themselves justice; surely amongst all their experience some more facts might have been advanced, but he thanked Mr. Oatway for the fact that he had given, and if he had done nothing more than extract that one fact he should have felt that his paper had done some good. Professor Axe had raised the extremely important question of the transmissibilty of accidental injury. They had mutilations of all sorts, but these mutilations were, as a rule, not transmissible; but it was a question whether if an accident or a mutilation caused disease, that disease was not transmissible. He (Mr. Hunting) had arrived at the conclusion that although a little accident was not as a rule transmitted, an accident which caused a vital change in an animal might be transmitted. Dr. Laycock, of Edinburgh, said that a vital tendency once established in an animal continued to run its course, not only through that animal but through its offspring, until deflected by some other cause greater than itself.

What they wanted to get at was not whether a stallion was suffering from a disease which he got from his mother, but whether he would transmit that disease to his offspring. Of course evidence that a horse was suffering from a disease that his mother had was *prima facie* evidence that he would transmit it, but was not conclusive evidence.

With reference to Splint, only a day or two since he saw a case in which a four-year-old horse that had never done any work, developed two Splints without going lame; these Splints were both on the outside of the metacarpal bones, and they were both in exactly the same position. One could not account for the Splints except upon the hereditary principle. He should be rather inclined to regard all tendency to inflammation of the feet as hereditary.

One gentleman had said that he would not object to simple Ophthalmia; in the majority of cases it was impossible to tell simple Ophthalmia from constitutional Ophthalmia, and therefore, when he personally came across any case of Ophthalmia in a stallion, he should certainly reject for it. A friend of his, a visitor that evening, had told him of a case in which he bred from a mare that had had one eye completely knocked out. Strange to say its foal suffered from Amaurosis, and was perfectly blind; there may have been no connection whatever between the two circumstances, but he was inclined to think that the effects of accidents to organs of special sense were likely to be transmitted, and he should be inclined to advise judges to disqualify a horse that had an eye knocked out.

As to the second part of his subject, he would suggest that a veterinary

surgeon's opinion should be merely that of an expert; a surgeon might come across an animal suffering from a disease which he thought was transmissible, but the owner should have an opportunity to prove a clean bill of health in his horse's stock, and if he could do so that ought to over-ride the opinion of the veterinary expert. If show authorities would keep a careful record of what was said by surgeons about the stallions there would, in the course of time, be evidence which would enable the profession to form much better opinions. He objected to the proposal to give certificates of soundness to all the stallions in a show in which the veterinary officers failed to find any defect.

One gentleman had said that a sickle-shaped hock was predisposed to curb; he, personally, had not found more curbs in sickle-hocked horses than in straight-hocked horses. From his own experience he could not say whether broken-wind was hereditary; there were, no doubt, cases in which the foals of broken-winded mares had become broken-winded, but considering that many farmers reserved the "choice bits" of their hay, not for feeding their own cattle, but for the market, it was hardly to be wondered at that the colts went broken-winded; the wonder was that on some farms there were any horses that were not broken-winded.

They had had that evening two pieces of positive evidence from Messrs. Mulvey and Caton as to the hereditariness of "Grease," and he was prepared to accept it as a fact; in future he should look upon "Grease" as hereditary.

A vote of thanks was accorded Mr. Hunting for his paper.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

A QUARTERLY meeting of the members of this Association was held at the Swan Hotel, Stafford, on the 15th May, Mr. R. C. Trigger (Newcastle-under-Lyme), President, in the chair.

Also present.—Members: Messrs. W. Carless, Stafford; F. Blakeway, Stourbridge; H. Olver, Tamworth; W. S. Carless, Worcester; J. Coe, Stoke-on-Trent; F. C. Golden, Martham; J. M. Parker, Birmingham; W. Tailby, Birmingham; E. Hodgkinson, Uttoxeter; H. M. Stanley, Birmingham; J. Malcolm, Hon. Sec.

Visitors.—Messrs. T. Briggs, Bury; W. A. Taylor, E. Faulkener, T. Greaves, Manchester; W. Hunting, London; F. Bell, Ford, Salop; B. Kettle, Market Drayton; Tilstone, Stafford; E. H. Croydon, Newcastle-under-Lyme.

Letters of apology were announced by the Hon. Sec. from Sir Henry Simpson; Professor Pritchard, London; Professor Walley, Edinburgh; Professor Williams; Professor Brown, C.B.; Dr. G. Fleming, C.B., London; Mr. T. Chambers, one of the Vice-Presidents; Messrs. A. Over, Rugby; G. H. Pyatt, F. J. Pyatt, Nottingham; F. Wragg, London; Lewis, Crewe; Capt. Russell, Grantham; etc., etc.

Having entertained the company at luncheon, the President delivered his

Inaugural Address.

GENTLEMEN,—I must preface the few remarks I have this day to make with a very hearty expression of my thanks to you for the honour you have conferred upon me in unanimously electing me your President for the ensuing year.

I feel deeply sensible that you have conferred upon me the highest honour that you have to bestow, and it will be my earnest endeavour to prove myself worthy of the trust you have reposed in me. I can assure you that it is my wish to spare neither time, trouble, nor expense in the maintenance of the dignity of my office. I have received from members of this Society

many kindnesses, and I am sure that, in my new position, I may claim with the greatest confidence from each of you, for myself and colleagues, that same courtesy and consideration which has ever been accorded to our predecessors in office, and in this assurance I venture to look forward to a pleasant year of office, and to indulge a hope that at the end of that time the very firm basis upon which the Midland Counties Society now stands may be, if possible, made stronger and firmer still, that many personal friendships may be cemented, and that, when we meet at these scientific gatherings, the feeling of good fellowship and kindness that here exists may be carried back with us into private life and every-day practice.

The observations that I propose to make this day will be entirely of a practical character, and will be chiefly glances at subjects that I think are of interest to us at the present day.

Turning, then, for a moment to our Society, it is indeed pleasing to be able to congratulate you very heartily upon its present position. Viewed from a scientific point of view, which is, undoubtedly, its most important aspect, we find that we have had some excellent and highly instructive papers read before us—papers which have led to excellent discussions at the time, and I am sure have furnished food for reflection afterwards, and which it has been impossible to take part in and think over without gaining some benefit.

From a social point of view, I do earnestly venture to hope that this Society is calculated to impart a higher and better tone to its members than once existed, and I feel assured that in this respect very much has been already done.

Our position, from a pecuniary point, is eminently satisfactory, and strongly illustrates the adage that "union is strength," and shows what may readily be done when men work together for the common good.

You all know, gentlemen, what a very nominal annual subscription we pay as members of this Association, and yet out of these small sums—thanks to our having had an excellent Treasurer and Secretaries, who have taken the onerous duties in an honorary character, and conducted them on the most efficient and economic principles—we have been able, within the past year or two, to present to the Building Fund of the Royal Veterinary College no less a sum than £100.

This, gentlemen, is a handsome sum, and one of which we may well be proud; but when I add to this that, after this heavy draw on our exchequer, we have still at our bankers a balance to our credit of no less a sum than £117 17s., I think that you will agree with me that on our financial position we may heartily congratulate ourselves, and once more repeat, "unity is strength."

No arguments in favour of ours and kindred societies can be necessary. If they were, a glance at what we have been able to do should be sufficient to convince the most sceptical. Every member of our profession owes it to himself and to his profession that he should be a member of one society at least, and that he should do what he can, in whatever capacity may offer, to enhance the interests of that society. It is as much the duty of a veterinary surgeon, as it is that he should keep himself well versed in the veterinary and medical literature of the day; and here let me address a few words specially to our younger members, and say how pleased we are to welcome them into our societies, and also how anxious to see them taking their part in our discussions. No one in every-day practice but who sees something of interest; and even if he feels diffidence about discussion, he will find that if he will bring morbid specimens to lay before us he will not only be assisting the Society, but will himself gain confidence and experience thereby.

Passing on beyond the limits of our Society into the world of the profession generally, we see a very different state of affairs to that which was in existence even a few years ago.

The veterinary profession, gentlemen, is progressing, and that rapidly, and is certainly and surely taking that position to which it is justly entitled. Socially the highest honours are now open to its members. The President of the Royal College of Veterinary Surgeons for the past year has received the honour of knighthood; and here we may pause to note that this gentleman, who has attained the highest position the profession can bestow, is a member of the Midland Counties Veterinary Association, and although in his case the honour conferred by royalty is an individual one, I take it that it reflects credit upon the profession generally. Upon another gentleman—Professor Brown—has been conferred the high honour of Companion of the Bath, and, considering the distinguished services that he has rendered to science, the honour was well deserved. Presentations at Court have lately been somewhat numerous, chiefly, it is true, amongst army veterinary surgeons, but not entirely, and therefore it is reasonable to suppose that such honours are open to general practitioners, supposing they render themselves eminent either as authors, scientific discoverers, or by other legitimate means. My object in mentioning these honours is to illustrate my remark that our profession was progressing. Only a short time ago the fact of a man being a veterinary surgeon would have been sufficient alone to act as a bar to his obtaining any social distinction. I think you will agree that it behoves us by our conduct to show to the public that we are quite capable of taking a high position and of maintaining it with the same dignity as other learned professions. For a large measure of the advancement here alluded to the profession is indebted to Dr. George Fleming. He has worked for us with untiring zeal, is still working in the same good cause, and to him belongs a large measure of the credit.

In other respects, too, we have achieved some successes, perhaps more especially with regard to the Contagious Diseases (Animals) Act. Much has lately been done; more and very important matter, in my opinion, remains to be done.

Comparatively a few years ago, and only very few diseases came under this Act—probably only Cattle Plagues, Pleuro-pneumonia, and Foot-and-mouth Diseases; since then we have had added Glanders and Farcy, Swine Fever, Sheep Scab, and others; and more lately still, Rabies and Anthrax; and here let us note the frightful dimensions that Rabies has attained, and how necessary it was that it should be the subject of legislation. Until within the last few years we seldom saw a case—they were of rare occurrence; now they are unfortunately common. The measures that we are enabled to adopt are not sufficient—securing dogs during an outbreak in the jurisdiction of one Local Authority and not in the next. Having them muzzled in one little town and not outside its boundary is simply playing with the matter. I earnestly exhort you all to agitate, whenever opportunity offers, until you have secured that all dogs over the United Kingdom shall be secured for at least six months; better still if you can make it twelve. It is a duty which our profession owes to the public generally. I am quite aware that a certain portion of the press write down this matter as false alarm, etc., and assert that the dogs are not rabid—that people who are bitten are frightened into illness as a result of mental impressions. Well, gentlemen, these arguments, if such they can be called, are easily refuted and their absurdity shown. "Mental impressions will not produce Rabies in horses, cattle, and sheep that have been bitten," and I have unfortunately seen too many of these cases to leave room for doubt as to the nature of the malady that exists amongst our dogs. Much more might be

said on this subject. We have time to-day only to just notice the leading topics, and I take it that this is one of them.

Foot-and-mouth Disease, thanks to repressive measures, is now happily almost a thing of the past. Swine Fever will not be stamped out so long as present legislation on the subject exists. More decisive stamping-out measures must be adopted. It is a mistake making the slaughter question optional with Local Authorities.

In Pleuro-pneumonia, as you are aware, decisive stamping-out measures are now the order of the day, and compulsory slaughter of the whole herd where the disease appears is insisted upon, and such vigorous measures will, I believe, eventually be crowned with success. The measures we are enabled to mete out to Glanders and Farcy might be more satisfactory. Glanders, of course, is vigorously dealt with, and, in my opinion, Farcy should be placed upon all fours with it; and whilst on this subject let me commend to the notice of those who have not yet seen it an excellent little work, recently published—"Hunting on Glanders." It is at a merely nominal price, and is a pocket companion that every veterinary surgeon should possess, as it contains a quantity of valuable information in a concise form.

So far, in considering the Contagious Diseases Act, we have noticed chiefly what it has done. I now come to a subject of paramount importance as to what it should do with regard to Tuberculosis. To bring this malady under the Act is, in my opinion, one of the crying necessities of the day. This dire affection devastates our herds to perhaps a greater extent than any other disease that we could mention. It is not so self-assertive as some others, being of an insidious character; and herein lies its chief danger. It has a frightful hold upon our stock. As you are aware, it is hereditary to the last degree. Many of our cows are kept in ill-ventilated shippens, under circumstances entirely favourable to its development; and when it exists, although we are well aware of the danger to human beings taking the milk when once the mammary glands of the cow become the subject of Tubercle, we are absolutely powerless to prevent the mischief that we see going on, because it entirely depends upon the owner whether the animal affected is slaughtered or not; and as such animals are generally extremely lean and, unfortunately, heavy milkers, of course the probabilities are much against this course being adopted. Consider for a moment the ravages caused yearly in our herds by this disease. Every year, in my district anyway, many farmers lose some percentage of their stock, and I should be much within the mark if I were to say that for many years for every one animal that has been lost of a recognised contagious disease, twenty at least have fallen victims to Tuberculosis. I feel sure that gentlemen present having extensive mixed practices can confirm me in this view, and I therefore urge upon the veterinary profession to use its undoubtedly great influence to bring this terrible malady within the scope of legislation.

Another point in the same subject (that is, legislation) is the question of the Dairies and Milk Shops Act. The inspections should either be made by a veterinary surgeon or else under the supervision of one, and this will be more especially necessary should the views expressed above on Tuberculosis ever be carried into effect. Lastly, on this subject, I would just refer to the inspection of meat. In this matter the veterinary surgeon is the proper person to appeal to. It should not be in the hands of sanitary inspectors and medical officers, who have frequently had but little experience of such cases; and freely I admit that I have usually found medical officers anxious to avail themselves of veterinary assistance, but this may not be so in all cases, and it would be well that it should be recognised as the functions of the veterinary surgeon.

The next matter on which I propose to ask your attention for a few moments

only is one that cannot fail to be of interest to you all, and it is one of which in these latter days we hear, unfortunately, too much. It is the "liability of veterinary surgeons"—the legal liabilities for their acts. In connection with this subject I may remark, as you all know, we have in our profession a very excellent Society, the Benevolent and Defence Association, and to this Association I say unhesitatingly it is the duty of every member of the profession to belong and subscribe. It is capable, if viewed from its benevolent aspect alone, of doing immense good, and as such is worthy of every support. As a Defence Society it may also be a very great assistance, and in case of any member of it becoming, as he undoubtedly may be, liable for damages, either by carelessness of his servants, such as allowing one horse to get loose and kick another, or in many ways where accidents occur that might readily have been prevented, as a subscriber to this Society he would be undoubtedly entitled to ask it to bear the loss, against which he had practically insured himself. But I am afraid this Society, in the best-intentioned manner possible, and perhaps with a desire to settle cases with as small a draw upon the exchequer as may be, has deviated somewhat from the course of pure defence; anyway, there is a wide impression abroad that it is becoming too much of a settling society. As you are aware, many cases that arise where claims are made can be settled for a very nominal sum. Many of the claimants know perfectly well that they have no reasonable prospect of obtaining damages at law, and are, if I may use the expression, simply "trying it on," and have no intention of proceeding to extremities. They are, of course, only too pleased to accept any pecuniary offer that may be made, and it is quite true that many cases may readily be settled for very far less than they could be defended for, even if you won your case all round. But, I ask, is this in the best interests of the profession? These settlements naturally become common topics, and do they not lead to other claims being made, of which nothing would ever have been heard? More especially here may I allude to the case of horses being pricked in shoeing in veterinary forges. It seems to me to be becoming quite common, more especially in some districts, to recognise liability for such injuries, and to give compensation, and this in the face of such authorities as we have, which are certainly not numerous, on the subject. So long as you employ steady, skilful workmen, and they are perfectly sober, no liability, in my opinion, rests on the veterinary surgeon. The owner must show negligence, want of some ordinary care, or of some precaution that might have been observed; unless he can do this, he has no claim against the owner of the forge. Shoeing is one of the risks of horse-keeping. A horse cannot be shod without a certain amount of risk, and the owner of the horse cannot transfer that risk to your shoulders unless he can show that you were wanting in some proper precaution. I recollect a case being tried some years ago in London, in which it was ruled that the owner of the horse had failed to show negligence, and therefore must fail in his action. Would it not be better, instead of settling a lot of these little cases, to take one case, defend it on its own merits, and get a ruling on the matter? We could not be worse off than in the uncertain state we now are; we may be very much better, and I am quite sure the members of the profession would subscribe liberally to find funds for such a case if they thought they were drawing too heavily on the Defence Association. It is cruelly unjust to suppose that we can be pecuniarily liable for that which we have no reasonable power of preventing. In advancing the above, I would add that, if a veterinary surgeon found that his men had been guilty of negligence, he would honourably settle the matter, or ask the Defence Association to do so for him; this would only be reasonable and just.

With regard to the liability of a veterinary surgeon in ordinary practice, it is more imaginary than real. The same remarks in reference to shoeing will

readily apply here. Negligence or want of skill must be proved before any liability can be brought home. Use every precaution; always point out to owners that a certain amount of risk attends any operation, however simple. Above all, and before all, be most careful and guarded in your remarks when you hear ill-luck has followed some operation of a brother practitioner. In such cases treat your neighbour as you would wish that he should treat you under similar circumstances, and you will hear very little of liability in such cases. Mishaps will happen to anyone, especially in large business establishments. It therefore, as I before said, behoves every one of you to belong to such an Association as the Benevolent and Defence, when, if you do unfortunately, through some unforeseen circumstances, find yourselves liable for damages, you will be justly entitled to ask that Society to bear your loss.

Gentlemen, I do not propose to detain you longer to-day. I would simply remark that I should like to see more decisive steps taken to make the pupilage of veterinary students compulsory, as I believe it is in the best interests of the profession that it should be so; and as we have yet to be laid before us a scientific paper on a subject which promises to be of unusual interest, I shall close my paper by again thanking you for the honour conferred upon me, for your attendances here to-day, and, I may add, for the courteous hearing you have given me.

Mr. CARLESS read the following paper on this subject:—

Some of the Pernicious Effects of Sewage on Animal Life.

I will firstly trace the sewage from its origin, and detail the common method of dealing with it by the Local Authorities of the district, and afterwards describe its ill-effects on the various animals of our farms, concluding with a few hints as to the best way of dealing with the evil.

When a corporate body in a city or borough have been made alive to the necessity of dealing with the effete matter of the place, their first consideration is, How can it be dealt with in the easiest and most economical way? If they are blessed with waterworks and have a good supply, the usual method is by flushing and conveying away in carriers to some convenient place—generally a sewage farm, over which it is dispersed as a fertiliser, the surplus fluid finding its way into the natural watercourses contiguous thereto.

Now, as long as the land upon which it is thrown is poor and lumpy, all goes on well and the result is satisfactory; but when it becomes surcharged the mischief begins, the vegetation on the land becomes strong and foul, and the superabundant fluid, when it finds its way into the brook, is not properly filtered, and as a consequence contains a greater or less amount of decomposing organic matter, which is prejudicial to animal life.

I have seen some streams so polluted that even a frog could not live in it, and the vegetation completely destroyed for a considerable distance. The analysis of the water in these streams shows a considerable amount of decomposing organic matter, free ammonia, nitrates, and chloride of sodium, such water being quite unfit for drinking purposes.

Now, as a matter of course, animals that are solely dependent upon these polluted streams for their water supply cannot very long retain a vigorous state. In my experience cows in full milk are soonest affected. This may be that they consume more of the water. Young cattle, horses, and sheep are all alike affected by it, and, if they do not actually die, their condition is so reduced that they are rendered both useless and unprofitable.

The first evidence of attack is an unthrifty look, with a very sensitive skin, the coat standing with every change of the weather, and slight rigors, which become more frequent as the animal gets worse. Then follows emaciation and frequent sharp attacks of diarrhœa. At this stage of the malady the animal has a depraved appetite, and is often seen licking and even eating soil

It will be found standing with legs all together, back arched, sides fallen in, and when made to move does so with reluctance.

The appetite now becomes very fastidious, and there is a perpetual thirst, which is soon followed by an acute form of diarrhœa, which terminates fatally in from two to five weeks. It is noticed by the herdsman that when an animal is once attacked with this peculiar form of Enteric Fever it prefers the polluted water to any other.

I have had several opportunities of making *post-mortem* examinations of animals which have died from this cause, and have invariably found a marked absence of disease in any of the viscera, except the mucous lining membrane of the fourth stomach and bowels. This has always been considerably thickened and of a dirty greyish hue; the contents entirely fluid and of a coffee colour; the mysenteric glands are enlarged, and when cut into are seen to be considerably congested.

I have not seen any fatal cases from this cause in horses. I have seen them reduced to great extremes, but when removed from its influence they have always made a good recovery.

Sheep that have been subjected to the evils of sewage water suffer considerably in their condition, both of flesh and wool; and if ewes are tainted with it at lambing time, there is always a considerable fatality from congestion of the uterus.

I have very grave suspicion that Tuberculosis in cattle may sometimes have its origin in this system of land irrigation, but am not prepared at present to state it as a fact.

Now, gentlemen, this state of things, which I have very feebly described, ought not to exist in this advanced period of sanitation, and we as veterinary surgeons should do all we can to remedy it, to do which we must be able to show that the generally adopted practice of dealing with the sewage is dangerous to animal life, and through them to human life, by consumption of milk, etc., etc.

As I said before, the removal of effete matter from our cities and towns is generally done by flushing with water and gravitation, the lowest available spot being selected for its deposit. This, I say, is bad economy, as the land soon becomes surcharged, and as a consequence the sewage must find its way into the streams.

I have found that during the summer months, when it is so necessary to flush and cleanse, thereby increasing the volume of sewage, that the smallest possible area is retained uncropped to receive this extra quantity, and as a consequence it cannot percolate, but runs over the land into the streams.

Now, I maintain that water meadows and low pasture lands do not require sewage irrigation, and therefore it is in a great measure wasted; whereas, if it can be transferred to the high, sterile, and cold lands, it would prove a mine of wealth to our farmer friends. This could only be done in one of two ways—either by establishing pumping stations, which would be an expensive method, or by collecting the solids and turning the fluids directly into the large streams.

The Rochdale system is, in my opinion, by far the most economical and complete, and should be adopted wherever it can be.

I am afraid, gentlemen, that you will vote this a very dirty subject, but I shall not apologise for bringing it forward, as I am convinced such matters ought to be well considered by us all.

I will conclude by thanking you very much for your patient hearing, and hope that a discussion will ensue that will be beneficial to all of us.

The PRESIDENT, in inviting discussion on the subject, characterised the paper as an eminently practical and valuable one.

(*To be continued.*)

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held in the County Hotel, Newcastle-on-Tyne, on May 25th, the President, Mr. D. Dudgeon, in the chair.

Present—Messrs. J. Golton, North Shields; A. Hunter, H. Hunter, J. W. T. Moore, W. A. Hancock, C. Stephenson, G. Elphick, Wm. Hunter, Newcastle-on-Tyne; A. Chivas, Corbridge; W. Grieve, Blaydon; J. E. Tudor, South Shields; and the Secretary.

Visitors.—Professor McFadyean and Mr. F. T. Finney.

Apologies for non-attendance were received from Messrs. W. J. Mulvey, J. E. Peele, E. Bennett, J. B. Nesbitt, W. T. Briggs, and C. Gresty.

Mr. H. Gelsthorpe, of Darlington, was unanimously elected a member.

Mr. G. ELPHICK, Chairman of the Provisional Committee of the National Veterinary Medical Association, informed the members that the meetings of this Association would be held in Newcastle-on-Tyne on the 17th and 18th July.

Mr. H. HUNTER proposed, and Mr. C. STEPHENSON seconded, that Prof. McFadyean be elected an Honorary Associate, which was carried unanimously.

Prof. MCFADYEAN thanked the members for the honour conferred upon him.

Mr. H. HUNTER then referred to the loss the Society had sustained in the death of Mr. H. Peele, of Hartlepool. He said that Mr. Peele was a college friend of his—a thoroughly kind and genial man, and one that would be missed by the members. He concluded by moving that the Secretary send a vote of condolence to Mrs. Peele.

Mr. C. STEPHENSON and the PRESIDENT also referred to the sterling value of Mr. Peele. The motion was carried *nem. con.*

Prof. MCFADYEAN read a paper on "Swine Fever," dealing especially with the bowel lesions in a most able and exhaustive manner, illustrating them with diagrams and microscopic specimens.

An interesting discussion followed, in which Messrs. C. Stephenson, J. W. T. Moore, H. Hunter, W. Grieve, and the President took part.

The next meeting is to be held at Sunderland.

G. R. DUDGEON, *Hon. Sec.*

GLASGOW VETERINARY COLLEGE.

THE winter session of this institution terminated on the 17th May, and on the 18th, 19th, 23rd, and 24th the oral examinations of the Royal College of Veterinary Surgeons were conducted within the Museum of the College. The candidates for diploma were also subjected to a rigid practical examination on horses, cattle, and sheep, selected and brought to the College for that purpose. Thirty gentlemen presented themselves for the first or theoretical part of the final examination, and of this number twenty-two were successful—Mr. William Robb passing with "great credit." Nineteen gentlemen presented themselves for the second or practical part of the final examination, and of these the following succeeded in obtaining the diploma of the Royal College of Veterinary Surgeons, viz.:—

Messrs. John Ferguson, Alyth, Perthshire; Robert Hamilton, Lanark; William B. Gardner, Ballymena; Matthew Graham, Stepps, Glasgow; Henry D. Young, Stewarton; William D. Smith, Dundalk; Alexander B. Baird, Rutherglen; John M'Kerlie, Stranraer; John Macfarlane, Gartmore; Thomas J. Campbell, Stranraer; James D. Miller, Ardgour, Argyleshire; John Forbes, Bellshill; David Imrie, Strathbungo; Alfred Mackenzie, Govan; James Shade, Glasgow; James M. Stewart, Paisley; Frederick G. Warmington, Shrewley, Warwickshire; and Thomas B. Hamilton, Fordingbridge, Salisbury. Messrs. James Borrowman, Auchtermuchty; William Robb, Glasgow; and Andrew K. Hart, Glasgow, passed the theoretical part of the examina-

tion, but were (in accordance with the regulations) prevented from completing their practical examination on account of their being under age.

Nineteen students presented themselves for the "B" or second examination, and the following passed, viz. :—

Messrs. Joseph M. Graham, Londonderry; John W. Peatt, Rockcorry, Monaghan; James Gregg, Dromara, County Down; Matthew Wilson, Mendota, Illinois; John Watson, Glasgow; James M'Dougall, Helensburgh; David Warnock, Glasgow; William E. Maxwell, Dundalk, County Louth; James N. Beevor, Brighton; Samuel R. Thompson, Dundrod, County Antrim; Charles J. Dunn, Glasgow; and Hugh Ross, Invergordon, Rossshire.

The following students passed their first professional examination, viz. :—

Messrs. J. K. Bruce, Alyth, Perthshire; Robert Weir, Carstairs, Lanarkshire; William Logan, Overton, Ayrshire; W. H. Davidson, Glasgow; Archibald Renfrew, Hurlet; T. A. Trotter, Falkland, Fifeshire; William Erskine, Bridge of Weir; W. M'Murrich, Helensburgh; D. Clerk, Kilmartin, Argyleshire; George Waddell, Glasgow; James Bishop, Glasgow; Joseph Thompson, Ballynahinch, County Down; P. J. Austen, Lurgan, County Armagh; C. A. Squair, Kildrummie, Nairnshire; P. Connolly, Warrenpoint, County Down; James Kirk, Dumfries; Alexander Hill, Ballynahinch, County Down; William Ledger, Lisnaskea, County Fermanagh; and P. Gillespie, Strathbungo, Lanarkshire.

Prize List.

Medals granted by the Highland and Agricultural Society of Scotland; the late Professor Allan Thomson, of London; Mr. Thomas Campbell, F.R.C.V.S., Kirkcudbright; and Principal M'Call; and certificates of merit by the college were awarded in the different branches of study as follows:—Horse pathology (written examination), silver medal (H. and A. S. of S.), Mr. John Ferguson. First-class certificates—Messrs. Stewart, M'Kerlie, Borrowman, and Imrie. Second-class certificates—Messrs. M'Farlane, Hart, and Robb. Cattle pathology (written examination), silver medal (H. and A. S. of S.)—Mr. James M. Stewart. First-class certificates—Messrs. Imrie, Ferguson, Hart, and Robb. Second-class certificates—Messrs. M'Kerlie, Borrowman, and Miller. Morbid anatomy (written examination). First-class certificates—Messrs. Hart and Borrowman. Second-class certificates—Messrs. Ferguson, Imrie, Forbes, M'Kerlie, Robb, and Welsh. Practical examination of horses as to age, soundness, operations, etc., gold medal (Principal M'Call), Mr. Matthew Graham. First-class certificate—Mr. Stewart. Second-class certificate—Mr. M'Kenzie. Practical examination of cattle and sheep as to soundness, age, operations, etc., gold medal (Mr. Campbell), Mr. W. D. Smith. First-class certificate—Mr. M'Kerlie. Second-class certificate—Mr. Robert Hamilton. Anatomy (special and comparative) medallist—Mr. David Warnock. First-class certificate—Messrs. Thompson and Gregg. Second-class certificates—Messrs. Peatt, Graham, M'Dougall, and Wilson. Physiology (written examination), medallist—Mr. James Gregg. First-class certificates—Messrs. Warnock and Thompson. Second-class certificates—Messrs. Ross, M'Dougall, Dunn, and Peatt. Best professional examination in anatomy, gold medal (the late Professor Allan Thomson)—Mr. David Warnock. Junior Anatomy—Medallist, Mr. K. J. Bruce. First-class certificates—Messrs. Trotter, Renfrew, Kirk, and Davidson. Second-class certificates—Messrs. Ledger, Austin, Erskine, Weir, and Bishop. Chemistry, medallist, Mr. Joseph Kirk. First-class certificates—Messrs. Austin, Davidson, Erskine, Renfrew, Trotter, and Waddell. Second-class certificates—Messrs. Bruce, Clerk, Logan, and M'Murrich. Botany (written examination), medallist—Mr. T. A. Trotter. First-class certificates—Messrs. Austin, Bruce, Logan, Waddell, and Kirk. Second-class certificates—Messrs. Erskine, Davidson, and

Renfrew. Therapeutics, special prize, consisting of a case of instruments, Mr. Robert Hamilton. Principal M'Call's bursary of £20, or a gold medal the value of that amount, for the student who obtained the highest aggregate marks in his first and second professional examinations before the Board of Examiners, was awarded to Mr. David Warnock.

At the close of the examinations, the Secretary to the Board of Examiners intimated that Messrs. Wilson, Maxwell, Graham, Thompson, Bruce, Logan, and Connolly had passed with "great credit," and Mr. David Warnock with "very great credit."

ROYAL AGRICULTURAL SOCIETY.

AT the monthly Council Meeting, held on June 6th, Sir John Thorold reported that Professor Brown had presented the following report :—

PLEURO-PNEUMONIA.—During the first eight weeks of the present quarter there have been eighty fresh outbreaks of this disease reported in Great Britain, of which forty-seven were in England and thirty-three in Scotland. This shows a slight increase in England as compared with the corresponding period of last year, but a very marked decrease in Scotland, where the disease was unusually prevalent last year. The returns published in the *London Gazette* show that, during the eight weeks above referred to, 307 cattle were attacked with Pleuro-pneumonia in Great Britain. Of these 196 were in England and 111 in Scotland, 298 were killed and nine died. In addition to this, 1,745 healthy cattle, which had been in association with the diseased, were slaughtered on the infected premises, or removed elsewhere for slaughter.

SWINE FEVER.—This disease is again increasing in this country. During the eight weeks ending May 26th, there were 1,082 fresh outbreaks reported, a greater number than was reported in the whole of the preceding three months. The number of swine attacked during the past two months has been 5,680, of which 2,945 were killed, 1,983 died, while only 305 recovered, and 563 diseased swine remained alive at the date of the last published returns.

ANTHRAX.—There have been forty-four outbreaks of this disease reported in Great Britain during the past two months, and eighty-one animals attacked by it; thirty-five of the outbreaks and sixty-seven of the animals attacked were in England, while nine outbreaks, in which fourteen animals were affected, occurred in Scotland.

The notice which was given in the report of the Council to the General Meeting, suggesting that diseased animals, or parts of dead animals affected with disease, might be sent to the Royal Veterinary College for the purpose of improving the tuition in cattle pathology, has already produced good results. Several veterinary surgeons and some of the members of the Society have sent animals and specimens. During the last month we have had cases of Ringworm in calves, scrofulous diseases in the joints of young cattle, and several cases of *Actinomycosis*, some of them of very peculiar form. Cases of Pericarditis and several instances of tuberculous udder in cows have been received, and cases of malignant disease of the udder in ewes which have caused very considerable loss in some parts of Lincolnshire and Hertfordshire.

In regard to the disease which is described as *Actinomycosis*, so called in consequence of its being associated with a fungus which grows in a rayed form branching out from a centre, it is necessary to observe that this disease has proved by recent inquiry to be extensively prevalent in various parts of the country, and in the whole of the Fen districts of Lincoln, Norfolk, Suffolk, Cambridge, and also in other parts. *Actinomycosis* has been detected in diseases which are described as wens, sitfasts, clyers, cancer, and also scirrhus and various forms of disease of the mouth, which are all classed together as Stomatitis. The malady is very malignant. The fungus penetrates

even into the bony tissues, and in many cases causes the death of the animal by invading some of the more vital organs. The subject forms part of the inquiry which Dr. Crookshank is undertaking in the laboratory of King's College, and it is proposed to submit a report to the Society, giving a history of the disease and its state of prevalence in the different parts of England.

Professor Brown had also submitted a report, prepared at his request by Mr. James Brodie Gresswell, M.R.C.V.S., of Louth, as to an outbreak of disease among cattle on the farmstead occupied by Mr. George Fowler, at Elsham, which appeared to be due to poisoning by some plant which grows in the paddocks, probably *Solanum dulcamara* (deadly nightshade). *Bryonia dioica* (wild bryony), an enormous quantity of which grows in the paddocks, is not considered by Mr. Carruthers to be poisonous.

Sir John Thorold further reported that a total of ninety-one entries had been received for the horse-shoeing competition—forty-seven in Class 1 for hunters, and forty-four in Class 2 for agricultural horses. A letter had been received from Mr. Frederick Low, accepting the post of provincial veterinary surgeon for the county of Norfolk. The committee announced with regret the death of their colleague, Mr. M. J. Harpley, and recommended that the president for the time being of the Royal College of Veterinary Surgeons be appointed a member of this Committee; also, that Mr. Clay be re-appointed on the Committee.

Various letters from the Farriers' Company had been read, and the Committee recommended that the Secretary seek a personal interview with the authorities of that Company, in order to explain the desire of the Council to meet the wishes of the Company, and that if the examination in the showyard is sufficient for their requirements, the Council will accept the offer of the Court of Assistants to confer the freedom of the Company on the first-prize winners in the competition, and will pay the necessary fees for the stamps.

The PRESIDENT read the following letter from Dr. Fleming, C.B., Principal Veterinary Surgeon to the Forces, which had just been received by him :—

"I am very sorry I cannot be present at the meeting of the Council this forenoon, as it was my intention to speak strongly, with your permission, in favour of continuing the practice of protective inoculation for Black Quarter. Such inoculation is in no respect whatever experimentation, and needs no licence to practise it. It is as certainly protective against Black Quarter as vaccination of man is against Small-pox, for which no licence is needed from the Home Secretary. As the prohibition to the application of this remedial measure will have serious results to veterinary science, no less than to agriculture, if the grounds of such prohibition be accepted as a principle upon which the Home Secretary may act, I would respectively urge that the Society maintain its right to resort to this inoculation as a medical and sanitary measure; and if no one else will do so, I will direct or even perform the operation, and assume the entire responsibility for such action, as I feel assured it would be amply justified anywhere and everywhere."

After some remarks from Lord Egerton of Tatton, who expressed his willingness to offer Dr. Fleming facilities for any treatment of the kind mentioned, the letter was remitted for consideration to the Veterinary Committee.

THE COLLEGE OF STATE MEDICINE.

ON June 13, at Burlington House, London, Dr. Fleming, C.B., Principal Veterinary Surgeon of the Army, delivered a lecture on "The More Important Diseases Common to Animals and Mankind." In the course of the lecture he said :—

"The relations of man to the lower animals are many-sided and diverse, but certainly those which pertain to pathological conditions are of the greatest moment to the student of disease, to the sanitarian, and to the legislator.

"In dealing with the more important diseases common to animals and mankind, it will be understood that I speak only of those maladies which are transmissible from one to the other—from animals to mankind, or from mankind to animals—those diseases which have been proved to be, or are assumed to be, due to the presence of a micro-organism or germ. There are other affections which are common to both, or rather have their affinities in each, but which cannot be transferred from one to the other.

"Although the actual number of diseases transferable from man to animals and animals to man is comparatively small, yet they occupy a relatively important position in human pathology; and this importance is enhanced by the fact that the number is being added to, because observation and experimental pathology are more rigorously and exactly applied in their investigation than hitherto.

"The science of comparative pathology, which deals especially with this subject, has two essential sources of information open to it—observation and experiment. Experimental pathology is the most fruitful source of precise knowledge in medicine, as it converts probability into certainty with regard to contagious diseases. True, its aid can rarely be invoked in investigating the phases and changes presenting in man from the introduction of an animal virus into his body; in fact, mankind cannot for moral and sentimental reasons be made a test agent, experimentally, except in one disease, which I shall allude to hereafter.

"Few though the diseases are which are common to man and animals, it is certain that man receives more than he gives; for while the number of human disorders which are transferable to animals is extremely limited, those of animals which can be communicated to him are comparatively numerous: the immunity animals enjoy in this respect is denied him. Thus the great majority of the more serious diseases to which the human race is liable cannot be transferred to animals: I may instance, Syphilis, Cholera, Typhoid Fever, Small-pox, Measles, and Scarlatina; while mankind has the aptitude to receive Anthrax, Rabies, Foot-and-mouth Disease, Glanders, Cow and Horse-pox, Diphtheria, and, in all probability, Tuberculosis—not to mention the reception of entozoa and epizoa, entophytes and epiphytes, which give rise to morbid conditions, often of a most serious nature, in our own species.

"Why the whole of the contagious diseases of animals cannot be conveyed to man, and all those of man to animals, we do not know; but it is probable that the non-transmissibility of affections which are acutely infectious and contagious in one species of creatures, and are not so with regard to other species, is related to the nature of the germs producing them, and the kind of pabulum upon which they thrive. The deadly Cattle Plague is confined to ruminants; while Anthrax, arising in these, can be implanted in a wide range of species, including man; Glanders, peculiar to solipeds, even varies in its infectiveness among these, and though it can be transferred to mankind, and some other species, yet cannot be conveyed to the ox. The Lung-plague of cattle cannot be transferred to other species, all attempts at its conveyance to these by inoculation having failed; yet so active is its virus in the bovine species, that a few drops of serosity from the affected lungs introduced beneath the skin of a cow, will cause death in a short time. Swine-plague, deadly in the porcine species, has a most limited range beyond it. Sheep-pox can, with great difficulty, be conveyed to goats, and cannot be carried further—while Horse and Cow-pox can be inoculated in several species, and especially in mankind. Rabies, arising in the canine species, knows scarcely any limit to its extension. And so on with other diseases belonging to this class; their diversity in respect to extension beyond the species to which they are special forming a curious and instructive study.

"I may remark here, and am justified in insisting upon the fact, which is

an important one to remember, that however widely a contagious disease may be extended among different species of creatures, it never loses its specific characters, though these may be more or less modified according to the species in which it is implanted; and when it is returned to its natural soil it manifests itself with all its original features, and proves its inalterableness and absolute identity, however much it may have been transformed or attenuated during its transitions from one species to another."

After dwelling on the great advantages experimental pathology had conferred upon medicine, speaking of it as the most fruitful source of precise knowledge in medicine, converting, as it does, probability into certainty with regard to contagious diseases, and lamenting the unfortunate restrictions placed upon its students in this country, he described Tuberculosis as the most serious of all the diseases common to mankind and animals. Enumerating its special features in every species liable to infection, the experiments which had led to the present state of our knowledge regarding it, the grave danger the public incurred through its prevalence in cattle and other creatures, and the urgent necessity for effective sanitary measures to check it, Glanders was alluded to as a malady which had been successfully controlled only since experimental pathology had demonstrated its real nature. Pointing out that it was known to the Romans, and that Solleysel and other French hippiatrists of the 16th, 17th, and 18th centuries recognised it as contagious, the lecturer remarked that its inoculability was demonstrated by the Danish veterinarian, Abilgaard in 1795, and Viborg in 1797; and at the commencement of this century its contagiousness among horses was entertained by many veterinarians. But, unfortunately, this knowledge was not utilised for the suppression of the disease, which was widely prevalent in this country and on the Continent; to such an extent that in Bavaria it was estimated that 4 per cent. of the horse population was destroyed by the disease. In one of the largest studs in Hungary it raged as an epizoöty from 1808 to 1816, and so virulently as to cause the death of nearly 20,000 horses. In 1812 alone it was estimated that as many as 12,000 horses were lost through it. The cause of the spread of the disease was doubtless due to the influence of the Broussain doctrine, which, in the first half of this century, did so much harm in regard to contagious diseases. Referring to the prevalence of the malady in this and other countries, and to its extinction among the horses of the British Army, he said the history of human Glanders is very curious.

In the 17th century Van Helmont imagined that Skin Glanders or Farcy might be a source of Syphilis in man—a notion entertained by Ricord so late as 1856. In 1783 Oisander observed what was probably a case of transmission of Glanders to man. In 1810 Waldinger, in 1812 Lorin, and in 1822 Veith, described accidents occurring to students and others from dissecting glandered horses, though they do not appear to have realised that the disease so produced had any relation to Glanders. In 1817, however, Sidow was of opinion that Glanders was transmissible to man, and asserted that to his own knowledge veterinary students very often had serious ulcers after dissecting glandered horses. But the first positive and undeniable observation of this transmission was made by Schilling, surgeon to a German cavalry regiment, who, in 1821, published a case of what he called "Gangrenous Erysipelas," due to an animal poison, occurring in an attendant at the Berlin Veterinary School, who had been employed in dressing the ulcerated nostrils of a glandered horse. The man died, and the *post-mortem* appearances were like those of a diseased horse. Then Weiss, another German surgeon, made a similar observation in the same year; but the director of the Berlin Veterinary School and some German veterinary surgeons averred they had never known of such transmission, though they admitted that sometimes

gangrene had followed dissection wounds. One veterinary surgeon was so confident the disease was not transmissible, that he offered to inoculate himself. In 1821, Muscroft reported in the *Edinburgh Medical and Surgical Journal* the case of a man who, in cutting up the carcase of a glandered horse to feed hounds, wounded himself in the hand. He became unwell after some days, showing symptoms like those of Farcy, became rapidly worse, and in about a week died of confirmed Glanders. In the same journal in 1823, mention is made of two similar cases occurring in London—one of them a veterinary surgeon—both accidentally inoculated from glandered horses, and both dying. In 1826, Travers published his celebrated work on "Constitutional Irritation," in which he gives his own observations and those of Coleman, of the Royal Veterinary College, on the transmission of Glanders from the horse to man, and from man to the ass—and here we have the first experimental demonstration of such transmission. A veterinary student wounded his finger while examining the head of a horse which had died of Glanders. The wound became an ulcer, and soon the absorbent vessels and connective tissue of the limbs were inflamed; abscesses formed, and death soon occurred. Abscesses were found in the lungs. Matter taken from these abscesses was inoculated into an ass by Coleman, and it soon died of Glanders. In another case, a veterinary surgeon in administering a bolus to a glandered horse was inoculated with the discharge from its nostrils, and attacked with Farcy, recovery from which was long and difficult. Travers also mentions another recovery of a coachman, who was attacked with Farcy and Glanders from contact with a glandered horse. An ass inoculated with matter from the ulcers in the nostrils died of Glanders.

In 1829, Brown published in the *London Medical Gazette* a very interesting "Fatal case of acute Glanders in the Human Subject"; and in 1833, Elliotson, in a paper published in the Medico-Chirurgical Transactions, entitled "On the Glanders of the Human Subject," gives four cases, with details of the autopsies, and describes the production of Glanders in an ass by inoculation with pus from one of the patients.

After this time numerous cases were published in England, and no doubt whatever was entertained as to Glanders being a communicable disease.

In France this knowledge made slow progress, for the facts accumulated elsewhere were scarcely known in that country. The doctrine of Broussais was the cause. Cases must have been numerous, and they are probably included among the putrid Fevers, malignant Gangrenes, adynamic Fevers, etc., which are so frequently mentioned at this time. Rayer had witnessed Glanders in horses, and at his hospital, "La Charité," one day in 1835 he discovered a groom suffering from the so-called Putrid Fever. His quick eye immediately detected a resemblance between it and the equine disorder, and the man's occupation confirmed the suspicion. He had been attending a diseased horse. It was a case of acute Glanders; all the symptoms were carefully noted, and when the man died the lesions were exactly registered: while with pus from the abscesses a horse was inoculated and Glanders produced.

Notwithstanding this demonstration the contagiousness of Glanders was stoutly denied; and almost endless, and certainly acrimonious discussions on the subject, took place at the Academy of Sciences and the Academy of Medicine, the strongest opponents of contagion being veterinary surgeons, who, from their opportunities of observing the disease, should have been foremost in upholding Rayer's opinion.

The lecture included Rabies, Anthrax, Foot-and-mouth Disease, the variolous diseases of animals—especially Cow and Horse-Pox, and reference was made to Diphtheria, Septicæmia, and, briefly, Scarlatina and Tetanus.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

At a meeting of the Board of Examiners held in London on and between April 4th and 18th, the following Students from the Royal Veterinary College passed their Oral and Practical Examinations and were admitted members of the profession:—

Mr. H. Spurgin	Freemantle, Southampton.
„ F. A. Simpkins	Narborough, near Leicester.
„ C. Rose	Highbury, N.
„ J. W. Wooding	Glandovey, Cardiganshire.
„ F. Aulton	Duffield, Derby.
„ C. K. Dobson	Holbeach, Lincolnshire.
„ W. Western	Sidcup, Kent.
„ A. E. Gostling	Swaffham, Kent.
„ C. Rea	Waterford, Ireland.
„ T. Hibbard	New Brompton, Kent.
„ F. W. Stanley	Not *yet* complied with rules.
„ J. P. Whigham	Hawkhurst, Kent.
„ J. T. Abell	Derby.
„ F. W. Anderton	Halifax, Yorkshire.
„ T. Dawson	Pontefract, Yorkshire.
„ F. P. Collings	Mutley, Plymouth.
„ F. C. Stratton	Southampton.
„ A. James	R. V. C., Camden Town.
„ R. W. Knowles	Wisbeach, Cambridge.
„ C. W. Crofts	Bedford.
„ W. Shipley	Great Yarmouth.
„ D. Fairbank	Willenhall, Staffordshire
„ J. T. Rees	Whitland, S. Wales.
„ T. F. Cade	Bristol.
„ W. R. Pointon	Not *yet* complied with rules
„ J. E. Cartwright	Wolverhampton.
„ W. Turtill	Wickham Market, Suffolk.
„ J. H. Harris	Monmouth.
„ W. H. Bush	Islington, N.
„ W. Perryman	Beaconsfield, Bucks.
„ W. H. Brooke	Handsworth, Birmingham.

The following students passed their Second Examination:—

Mr. J. C. Collings
„ H. J. Armstrong
* „ F. C. Gavin
„ H. W. Pitchford
* „ B. J. Rees
† „ T. B. Vanderplank
„ G. J. Harber
„ H. Millward
„ J. O. Cobbledick
„ T. Slipper
* „ J. W. Coe
* „ E. W. Oliver
„ J. C. Callow
† „ E. C. Martin
„ J. Gosling
* „ H. B. Chorlton
„ J. B. Dier.
„ A. H. Sugden.

Mr. W. B. Gridley.
„ F. E. Towler.
* „ J. Golledge.
„ T. Ludlow.
* „ E. D. Johnson.
* „ E. Porter-Smith.
† „ J. Millward.
„ B. L. Secker.
† „ A. Lesueur.
„ T. W. Peake.
„ A. J. Scath.
„ A. Bramall.
* „ H. S. Eglington.
„ J. Wilson.
„ F. W. Emery.
„ J. Wilson Barker.
† „ J. Beanland.

The following passed their First Examination :—

*Mr. T. N. Davis.
„ F. N. Potts.
„ H. B. Knight.
„ A. W. Reid.
„ L. E. Welfare.
„ R. W. Davis.
Mr. G. A. Wickett.
„ E. J. B. Fowler.
„ H. S. Smith.
*Capt. G. W. Farrell.
Mr. F. J. Carless.

ARTHUR W. HILL, *Secretary.*

Marked thus * passed Great Credit.
Marked thus † passed Very Great Credit.

At meetings of the Board of Examiners held in Edinburgh and Glasgow on and between May 14th and 24th, the following gentlemen passed their Final Examination, and were admitted Members of the Royal College of Veterinary Surgeons :—

Dick College.

Mr. M. Quinn	Ballymena, Co. Antrim.
„ F. R. Coleman	London.
„ J. Hughes	Belfast.
„ W. B. Cronyn	Dublin.
„ D. Jones	Denbigh.
„ A. Cleasby	Thirsk.
„ J. W. Hall	Hawick.
„ S. J. Hewitt	Newton-le-Willows, Lancashire.
„ J. O'Donoghue	Dublin.
„ J. Stewart	Edinburgh.
„ J. G. Clayton, G.C. ..	Wilmslow, Cheshire.
„ J. A. Gold, G.C.	Birmingham.
„ W. G. Barnes	Golspie.
„ D. C. Smith	Kirkconnel, Dumfries-shire.
„ M. Clarkson	Reith, Yorkshire.
„ W. Dagg	Nenagh, Tipperary.

New Veterinary College.

Mr. D. J. Jones	Cardigan.
„ F. Austerberry	Manchester.
„ F. L. Carter	Manchester.
„ W. J. Tatam	Bedford.
„ W. J. Wood	Pickering, Yorkshire.
„ J. Dunnett	Thurso.
„ J. F. Carson	Cahir.
„ T. Lillico	Wooler.
„ A. Shawcross	Cheadle, Cheshire.
„ J. D. Borthwick	Kirkliston, Edinburgh.
„ T. W. Grenfell	Calstock, Cornwall.
„ A. Duval, G.C.	Edinburgh.
„ G. Craik	South Shields.
„ J. Murray	Keith.
„ W. F. Egan	Ballinrobe, Mayo.
„ A. Bate	Wrexham.
„ S. Cameron	Barrow-in-Furness.

Glasgow Veterinary College.

Mr.	M. Graham	Glasgow.
„	H. D. Young	Stewarton, Ayrshire.
„	W. D. Smith	Dundalk.
„	A. B. Baird	Rutherglen.
„	R. Hamilton	Lanark.
„	T. J. Campbell	Stranraer.
„	J. D. Miller	Argyleshire.
„	J. M. Stewart	Paisley.
„	J. Forbes	Bellshill.
„	D. Imrie	Strathbungo, Renfrewshire.
„	J. Shade	Glasgow.
„	A. Mackenzie	Govan.
„	W. B. Gardner	Ballymena, Co. Antrim.
„	W. McKerlie	Stranraer.
„	J. Ferguson	Alyth, Perthshire.
„	T. B. Hamilton	Salisbury.
„	J. McFarlane	Gartmore, Perthshire.
„	F. G. Warmington	Shrewley, Warwickshire.

The following passed their Second Examination :—

Dick Veterinary College.

Mr. T. S. Clark.
„ C. D. Watkins.
„ G. Henderson.
„ J. Thompson.
„ H. G. Rogers.
„ P. Connacher.
„ R. H. Stephenson.
„ A. Dowdall, V.G.C.
„ W. McQuatt.
„ J. Peddie, V.G.C.
„ R. S. Craig.
„ F. W. Barling.
„ J. Bell, V.G.C.
„ F. T. Finney, G.C.
„ G. Langran.

Mr. T. W. Rogers.
„ J. W. Hewson, G.C.
„ A. Richardson, G.C.
„ J. C. Rowland, G.C.
„ A. S. Wallace, V.G.C.
„ A. E. Mettam.
„ J. M. Christy, G.C.
„ J. G. Gilmour.
„ J. E. Miller.
„ W. H. Hawthorne.
„ W. Achroyd, V.G.C.
„ S. Stockman.
„ G. Montgomery.
„ C. Deathe.

New Veterinary College.

Mr. W. Westgate.
„ T. Eastwood.
„ E. Kellett, G.C.
„ E. Frankline.
„ W. Dotchin.
„ G. Stevenson.
„ T. M. Parker, G.C.
„ F. D. McLaren, G.C.
„ A. D. Minor, C.C.
„ O. T. Williams.
„ W. J. Bushnell.
„ W. Stothert, G.C.
„ J. W. Bate.
„ R. C. Hughes, G.C.
„ E. H. Curbishley, V.G.C.
„ J. W. Rider, G.C.

Mr. E. P. Edwards.
„ T. G. Duggle, G.C.
„ F. Hutchinson.
„ W. Kendall.
„ R. W. Donaldson.
„ F. Dales.
„ T. H. Dale.
„ D. McGregor.
„ C. Ward, G.C.
„ R. D. Davidson.
„ J. Robertson, G.C.
„ J. Barker, G.C.
„ F. Booth.
„ E. F. de Jong.
„ J. Clanchy.
„ T. Williams.

Glasgow Veterinary College.

Mr. J. M. Graham, G.C.
„ J. W. Peatt.
„ J. Gregg.
„ M. Wilson, G.C.
„ J. Watson.
„ J. McDougall.
Mr. D. Warnock, V.G.C.
„ W. E. Maxwell, G.C.
„ S. R. Thompson, G.C.
„ C. J. Dunn.
„ H. Ross.
„ J. N. Beevor.

The following passed their First Examination :—

Dick Veterinary College.

Mr. D. H. Wood.
„ R. S. Walley.
„ R. Smith.
„ J. Mitchell.
„ D. Stronoghan, V.G.C.
„ H. Kenny, G.C.
„ W. Williams.
„ J. R. Crone, V.G.C.
Mr. W. P. Weston.
„ R. G. Robertson.
„ G. F. Ferguson.
„ J. Higginson, G.C.
„ J. Park, G.C.
„ A. Patterson, G.C.
„ W. Hewison.
„ E. Bowman.

New Veterinary College.

Mr. E. Fern.
„ J. A. R. Towers.
„ J. H. Parker.
„ T. Hume.
Mr. R. Bell.
„ J. Cockburn.
„ W. S. Lamont.
„ E. Nelson.

Glasgow Veterinary College.

Mr. J. K. Bruce, G.C.
„ R. Weir.
„ W. Logan, G.C.
„ W. H. Davidson.
„ A. Renfrew.
„ T. A. Trotter.
„ W. Erskine.
„ W. S. McMurrick.
„ D. Clerk.
„ G. Waddell.
Mr. J. Bishop.
„ J. Thompson.
„ P. J. Austin.
„ C. A. Squair.
„ P. Connoly, G.C.
„ J. Kirk.
„ A. Hill.
„ W. Ledger.
„ P. Gillespie.

R. RUTHERFORD, F.R.C.V.S.,
Secretary to Board of Examiners.

Army Veterinary Department.

THE Annual Dinner of the Army Veterinary Department took place at Whitehall Rooms of the Hôtel Metropole, on June 15th. The following were present :—Dr. Fleming, C.B., Principal Veterinary Surgeon (Chairman); Inspecting Veterinary Surgeons C. Steel (retired), Dr. Evans, J. D. Lambert, W. B. Walters; Veterinary Surgeons, First Class, H. Thomson, F. Walker, F. Duck, G. A. A. Oliver, J. Kettle, J. Reilly, W. Pallin (retired), J. Hammond, W. H. Kemp, J. W. Evans, A. A. Jones, G. D. Whitfield, J. Barton, S. Longhurst, S. Gillespie, A. Bostock, M. Anderson, T. Flintoff, J. D. Edwards, F. Smith, D. C. Pallin; Veterinary Surgeons W. R. Hagger, R. Pringle, T. A. Killick, J. B. Savage, E. Day, C. Rutherford, F. J. Short.

At the levée held by the Prince of Wales at St. James's Palace, on June 8th, Veterinary Surgeon First Class Adrian Jones, 2nd Life Guards, was presented by General Viscount Templeton; and Veterinary Surgeon First Class J. A. Woods, by Lord Kilmarnock.

Obituary.

THE Army Veterinary Department has sustained another loss by the death of a most promising officer, Mr. H. A. Fullam, who, though only a few years in the service, had won most favourable opinions. The sad event occurred at Karachi, Sind, India, on May 1st, death being due to cerebral apoplexy supervening on Small-pox.

The following deaths have been officially reported :—John Litt, M.R.C.V.S., Bolton, and George Bollington, M.R.C.V.S., Oldham.

Referring to the death of Mr. Harpley, to which we alluded in our last issue, the *World* of June 6th says :—"The 'Blues' are in mourning for their late popular veterinary surgeon, Mr. Harpley, who died the other day at his residence in Bruton Street, beloved by all who knew him. During his service with the regiment he was a moving spirit in its social life, and among his brother officers there was no man who was held in higher esteem, or whose opinion was more readily taken when any difficult question had to be decided affecting the regiment or its *personnel*.

Jurisprudence.

THE VETERINARY SURGEONS ACT.

AT the Beccles County Court, on May 16th, William Ives sued Emma Shardalon for 16s. for medicine and attendance upon the defendant's cows at Norton Subcourse. The Judge inquired if plaintiff was a member of the Veterinary College, or on the Register of Veterinary Surgeons? Plaintiff said he was not, but he was apprenticed to a veterinary surgeon, and had never done anything else all his life. His Honour said he could not recover, and directed plaintiff's attention to the fact that he was liable to a penalty of £20 every time he acted. Plaintiff said he did not know that, that there were hundreds acting in a similar way. He waited upon this lady when she could not get her own veterinary surgeon to the cows. Defendant: And this lady offered you a fair price. Judgment for defendant.

Notes and News.

A PROLIFIC EWE.—Mr. Geo. Bolam, Farndon, Alnwick, N.B., has a half-bred ewe which recently dropped five lambs. One of them died, but the others are doing well.

M. PASTEUR'S SYSTEM AND THE CATTLE PLAGUE.—The recent experimental inoculations against the Siberian Cattle-plague which have been carried out on a hundred Merino sheep by Dr. Gamalea, of the Bacteriological station at Odessa (the *Daily News'* correspondent says) have given the most hopeful results. Some time will of course be required to prove the absolute efficacy of the system. Dr. Gamalea assures me that he himself has now not the slightest doubt as to the general result. He estimates the cost of inoculating large flocks at approximately one penny per head. The importance of the success of this means of eradicating the Siberian Cattle-plague in Russia will perhaps be more readily understood when I state that during last year, in the single province of Kherson alone, the loss to proprietors by the ravages of this disease amounted to more than three millions of roubles. Dr. Gamalea and his colleagues being convinced that

the Cattle-plague arises from the presence of bacteria, the Pasteur system, applied under slightly altered conditions, will, they believe, eventually prove efficacious. Tentative experiments on cattle have already been made, but those now about to be undertaken on the basis of closely-made observations and general experience are expected to give more positive results. Glanders will be next experimented with. In the whole of Southern Russia the Siberian plague and the ordinary Cattle-plague have hitherto had a permanent habitat, and their yearly recurrence has impoverished and ruined thousands upon thousands of the peasant proprietors, to say nothing of the enormous losses of the large owners of sheep-runs and cattle-ranches.

TUBERCULOUS RATS.—Dr. Meunier mentions that, in a certain infirmary in France where it was the custom to throw the remains of poultices, which had been taken from tuberculous abscesses, into a corner of the garden, this spot proved a source of great attraction to the rats, which are very fond of linseed. These animals becoming very numerous, the students and medical officers had a grand rat hunt one day, and succeeded in killing a large number. They were somewhat astonished to notice that most of the rats had immense necks. On examination it was discovered that this was due to Tuberculosis of the glands. In addition to these glands other organs were in many cases found to be the seat of the disease, so that the rats had probably paid somewhat dearly for their indulgence in the luxury of eating cast-off poultices.

Correspondence.

THE DUAL OFFICE OF EXAMIMER AND COUNCILMAN.

SIR,—The above title stands at the head of a communication from Mr. Thomas Greaves, F.R.C.V.S., in the June number of the VETERINARY JOURNAL. As is his wont, Mr. Greaves poses therein as the champion of the Council, and while I make no charge of wilful misrepresentation against Mr. Greaves, I do assert that there is reason for sincere regret that, when he assumes the *rôle* of spokesman for the Council, he is not more particular—as is certainly not the case in the present instance—that his assertions are strictly in accordance with facts. I am quite satisfied that, as on former occasions when matters having reference to the profession, which, in the opinion of some members, call for reform, it has been perfectly useless to argue with Mr. Greaves in the hope of convincing him, so now he will continue to use his influence for the maintenance of things as they are in connection with this subject. Therefore I do not intend herein to answer Mr. Greaves personally; but, for the information of those who were not at the annual meeting in May, I propose to state the facts as they really were brought forward by Mr. Dollar and myself, as proposer and seconder of the motion put before the meeting in the following terms, viz., "That, in the opinion of the members of the profession here present, it is wrong in principle for a member of Council to act as an examiner."

Passing over Mr. Greaves' complimentary (?) remarks about "disaffected partisans," it is gratifying to read that "the objections raised against the system" may, under any conditions, even appear feasible. With most men such an admission would be received as the first gleam of hope that conviction might sooner or later dawn upon the mind; but I entertain no such hope of Mr. Greaves.

One of the principal objections to any member—or perhaps I ought to say Fellow—holding the double office of Councilman and examiner that was advanced was that the Council, having the power and authority to elect the

examiners, is practically the body to which the examiners are responsible, and that if at any time there should be a just cause of complaint against an examiner in reference to the fulfilment of his duties, it would devolve upon the Council to make the necessary correction. In which case the gentleman holding the dual office would, unless he for the time relinquished his responsibility at the Council Board, have to act as arbiter of his own case or that of a brother examiner. It was also stated that in the election of examiners a member of Council who aimed to occupy the dual office must, unless he retired for the time, vote for himself, which, if it takes place, is, to say the least, a very unseemly proceeding.

Mr. Greaves seems to have understood that this latter objection was the chief one advocated, and adds, as a rider of his own imagination, "irrespective of their fitness." This proviso was not mentioned either by Mr. Dollar or myself, and is therefore a departure from fact.

It certainly is not necessary for one to have "lost all faith in his fellowman" to object even to such an one as Dr. Fleming holding the dual office. Dr. Fleming's ability fits him for either position, as no one will admit more readily than I do. But I contend that, under the circumstances as they exist, it is neither prudent nor seemly that Dr. Fleming, or any one else, should be asked to undertake the double responsibility. Assuming that when the election of examiners takes place the member of Council proposed for the dual office retires for the time being, and does not take part by voice or vote in the matter, the Council is deprived of his influence on the occasion, and the question at once arises, Does not this involve a neglect of responsibility which he owes to those who elected him as a member of Council? Personally I consider it does, though, under the circumstances, unavoidable, which I consider evidence of the necessity for an entire reform. Mr. Greaves quotes Dr. Fleming's election to the Council as an instance wherein the profession showed its approval of the dual appointment, because he was recently elected as a member of Council by nearly one hundred votes more on the present occasion than were recorded at his previous election. This sort of argument is entirely misleading, as the votes were given for Dr. Fleming as a member of Council only, and had no bearing at all upon the subject of the dual office, which had not at that time been mooted in public. If Mr. Greaves cannot find any better method of supporting his views than by adopting such tactics as these, the value of his opinions may be very safely left to the profession to appraise.

No one, I presume, would question the statement that "those members of our Council who are also examiners are some of the best, if not the very best, members." It is patent to the shallowest mind that such may be the case, while at the same time a combination of offices may be, and no doubt is, extremely undesirable. It is the principle, not the capacity, of individuals that was questioned.

As Mr. Greaves, in his complacent self-satisfaction, claims that the present custom of electing examiners by the vote of the Council is perfection itself, and, after an experience of "between twenty and thirty years' actual work inside the Council," seems to be of the opinion that no one outside that body is competent even to form an opinion respecting such a subject as the election of the examiners, it may be desirable, if not interesting to Mr. Greaves, to state that there is a goodly number in the profession very dissatisfied at the steps taken by the Council at the recent election of examiners, inasmuch as the names of two gentlemen are missing from the present Examining Board who previously occupied the position with dignity to themselves and with a due appreciation of the requirements of their office. I refer to Mr. Archibald Robinson and Mr. W. A. Taylor, both of whom were eminently fitted for the responsible duties; and assuming that either or both did not give satisfaction

to every candidate who presented himself for examination, it is more than probable that this goes to prove how conscientiously they sought to fulfil their duties. If it were necessary to furnish an additional reason to what has already been advanced for dissatisfaction with the present mode of electing examiners, this action of the Council provides a very potent one, and unless these gentlemen voluntarily declined to be re-nominated, it is considered by many that an unjustifiable indignity has been heaped upon them, especially as regards Mr. Robinson, after what took place in Edinburgh.

I was always under the impression that, when gentleman are elected as members of Council, they presumably accept the office as representatives of the profession, whose duty it is to legislate for the profession as a body and to carry out the views of the majority; and I venture to think that if Mr. Greaves and those of the Council who agree with him showed themselves a little more ready to take into their consideration matters of reform that any members think are of sufficient importance to suggest, even though, as in this instance, supported by a minority, confidence would be more fully established, and a far better feeling exist towards the Council. Fortunately for myself I am able to approach this subject in an unquestionable spirit of chivalry, having for its object the well-being of the profession, and that only, so far as the light that is in me permits. A charge of jealousy and rancour cannot be levelled at one who is neither at present eligible nor ever likely to be for either membership on the Council or a seat at the Examining Board. I was therefore all the more pleased to be in a position, with an unbiassed mind, to support Mr. Dollar's well-timed resolution, and trust that the profession will, after thoughtful consideration, see it to be in its own interest to ultimately demand its adoption, and, as a sequence, to ensure a change in the system of electing the Examining Board.

J. SUTCLIFFE HURNDALL, M.R.C.V.S.

2, Gloucester Terrace, Blackheath, S.E., June, 1888.

"THE JOURNAL OF COMPARATIVE PATHOLOGY AND THERAPEUTICS" AND MR. POTTIE.

DEAR SIR,—A friend of mine the other day put a journal with the above title into my hands, at the same time calling my attention to an editorial paragraph, and to some remarks in the same journal by Mr. Pottie, "On the Propagation of Influenza from Stallions to Mares." The editorial paragraph is headed, "Can apparently Healthy Stallions communicate Influenza to Mares.?" The editor says "Mr. Pottie was, we believe, the first to call attention to the fact that stallions can and do communicate Influenza to mares served by them" Mr. Pottie commences his remarks by saying: "About four years ago, I brought this subject before the West of Scotland Veterinary Medical Association," etc. When I read these statements, I wondered whether the editor and Mr. Pottie had been dreaming, or whether I was myself dreaming. I think the majority of your subscribers will be able to satisfy themselves as to who was the first to direct attention to this subject in this country, by reference to pages 356 and 453 of the VETERINARY JOURNAL of 1885. I would particularly desire to draw the attention of such of your readers as are interested in the subject to page 456 of the same journal, where the following sentence will be found, commencing in the sixth line from the top of the page: "Several veterinary surgeons, I am told, examined the horse, and certified that he was not only in perfect health, but incapable of producing the disease." I need not tell your readers that but for the terms of Mr. Pottie's and the editor's remarks, I should not for one moment ever have thought of letting the profession know that the leader of the stallion informed me that Mr. Pottie was one of these veterinary surgeons. Although I have looked care-

fully through the transactions of the West of Scotland Veterinary Medical Association, I have been unable to find a remark of Mr. Pottie on the subject, and I may add that I have been a pretty regular attendant at the meetings of the Association, and certainly do not recollect Mr. Pottie ever introducing the subject. Having, however, indicated where a reference to the journal can easily decide the matter, I will not take up more of your space on the subject.

Thanking you in anticipation for the insertion of this letter.

Greenock, *June 15th.* ARCHIBALD ROBINSON.

CRUELTY TO ANIMALS.

SIR,—I send you the enclosed as an illustration of the proceedings of the R.S.P.C.A.

The following are the facts:—On April 28th my client, Mr. Allen, requested my attendance to a colt. On arriving on the Commons, I find two unbroken yearling colts, one of them going lame, apparently from a kick in the inside of near hind limb, above the hock. Not being able to get very near to the colts, I advised them both being driven to an enclosed field not half a mile distant; this was accomplished with very little trouble, the lame colt following the other. On further examining the injured colt I found an abrasion, not larger than a shilling, on the lower third of tibia, but failed to detect any crepitation whatever. I told my client the nature of the injury, adding that there was a good chance of its recovery, and advised the limb being bound round in a pitch plaster; this I did before leaving. The colt was then left in the two acre enclosure, as, being so young and unbroken, I did not consider it advisable to house it, which would have necessitated another half-mile drive.

I visited the colt again on May 4th, found the colt doing well, feeding, and able to put some weight on the injured limb; little or no sweating. Unfortunately the next day, May 5th, the colt gets into an adjoining field and falls into a gully on its back, and through struggling causes separation of bone to take place at point of injury. My client, on hearing of the accident, causes the animal to be immediately slaughtered (for which humane act he receives a second summons).

A policeman sees the carcase at the kennels a few days after, and sends word to the Society's inspector, who arrives and makes inquiries. Not being able to gain much information from Mr. Allen, he comes to me, saying he is making an investigation into the case; would I give him any information?

Knowing there was nothing to hide, I told him the whole circumstances, expressing an opinion that no cruelty whatever had been practised, and adding that my client was acting under my instructions in removing the colt from the Commons on April 28th. This I repeated on two occasions, and at neither interview did the inspector allege any cruelty on my part. Nevertheless, on leaving my house the second time, he immediately applied for a summons against me, the result of which you will see from the newspaper cutting I enclose.

The summonses were not issued until May 28th. The prosecution alleged that the colt's leg was fractured, and the bones in the same state on *April 28th* as seen by the inspector on or about *May 9th*, after the carcase had been dragged out of the gully by two horses, and carted a distance of four miles; and he called two youths, about seventeen and ten years of age, who never were within twenty yards of the animal. The other witnesses were a few miners, who had seen the colt walking about the field with its leg bound up, the man who fetched the carcase, and the kennel man who skinned it. The prosecution also exhibited the bones and portion of the skin in court.

Although the cases were dismissed, the costs which my client and self will

have to pay amounts to nearly five pounds. Apologising for trespassing on your valuable space,

WILLIAM RIDGMAN, M.R.C.V.S.

Liskeard, Cornwall, June 12th.

ANIMAL DISEASES IN THE UNITED STATES.

DEAR SIR,—Lower California, *on the coast*, has been afflicted with a low peculiar form of Fever among the horses. I am inclined to think that it is of the same character as the malaria which is so prevalent in that place amongst the human race. The symptoms are ordinary indications of Fever—*well-marked red spots on the mucous membrane of the eyes.* If the suffering animal is taken off work, and simple measures, such as cool loose box, green food, etc., are allowed, the tendency is almost always towards recovery. But occasionally the mucous membrane is noticed to undergo a most peculiar change, becoming in appearance first very red, then purple, with a tendency for the spots to run one into the other. Perhaps I ought not to have said that "Lower California" was affected, as I only saw this disease in San Diego, and had no opportunity to make further enquiries, as to its prevalence. This city has grown so fast in population, that the sewage and general sanitary conditions are not adequate to the sudden growth; malaria arises from the outskirts, near the bay; the city is built on a level with the sea, and maybe all these matters help to bring about the general state of malaria amongst men and cattle. At any rate, I have never seen any similar cases previous to these, and I have seen and treated hundreds of them during my residence in that town.

Ultimately I became affected with malaria, which caused congestion of the liver, and I became as yellow as California gold. I intended at the outset of the disease to notice if these "spots" on the mucous membrane appeared, but became so depressed and languid that it altogether escaped my memory. I took big doses of mercury and got the liver at work again, followed it up with plenty of quinine, and am now OK again, as the Americans express themselves. There is quite a lot of quackery in this country, both in medical and veterinary professors. This arises in a great measure from the tendency *on this side* of the Continent to "give every man a shew." This "shew" is frequently at the expense of horses' lives and pecuniary loss. In Canada they are more anxious that a man should *not* give deadly doses of medicine to animals by way of experiment. In a word, they appreciate *previous* practical training, and certificates to that effect. I am not mincing matters, but am stating plain truths, and I am sure that many other men will corroborate what I state. I have in my possession a prescription written by a practitioner of veterinary medicine—who asserts very strongly and denies most indignantly—containing ten drops of croton oil, eight drams of aloes, and half a gallon of linseed oil, and one ounce of laudanum, this mixture to be given to a horse suffering from Pneumonia. The "shew" that is given this man has a great tendency to lessen the number of the equine race. Personally, I can testify that this man has caused many a noble animal to bite the dust, and make food for the fishes of the Pacific Ocean. All dead animals are taken away in a lighter or barge, free of expense, opened so that the water may get in and cause the carcase to sink to the bottom of the peaceful ocean.

Chicago, as you will remember, has a population of eight hundred thousand, and is about fifty years of age. My first move was to make for the Veterinary School in State Street. It is a compact building, with large dissecting rooms above, infirmary, offices, pharmacy, etc., below, the professors having large private practices, from which the students are allowed to derive benefit. To-day I arrived in New York, and this afternoon made a pleasant visit to the "American Veterinary College," presided over by the well-

known Dr. Liautard, to whom I am indebted for treating me in the most courteous manner. The museum is a credit to that institution, and during the year 1887 there were two thousand eight hundred and twenty-seven diseased horses treated. This shews that attention is paid to imparting real information; but at the same time, while I will admit that the average American aspirant may be quicker in grasping mental matter than his English cousin, yet I hardly think that they can pack away—*permanently*—in so short a time as the curriculum demands, such an amount of veterinary information as shall entitle them to be called *properly* qualified veterinary surgeons. I notice, in the catalogue of the "American Veterinary College" that the official position of Meat Inspector is to be obtained only by graduates of veterinary medicine. This is good; and I maintain that there are few things which demonstrate the importance of the veterinary profession more than this matter, and such things that tend to *prevent* disease, both in man and beast. If I were a prophet I would prophesy that the schools of the future will tend more to the *prevention* than the cure of disease.

New York, *May 11th.* ROBERT J. DAWSON, V.S.

CORRIGENDA.

P. 386, 4th paragraph of article on Pilocarpine, read "It was this circumstance which induced me to combine, with such good results, Pilocarpine with Eserine."

SOCIETIES.

THE next meeting of the Royal Counties Veterinary Association will be held at Henley-on-Thames, on July 27th.

Several communications are held over until next month, in consequence of pressure on our space.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from F. Smith, A.V.D., Aldershot; R. J Dawson, New York; K. Lees, A.V.D., Newbridge; F. W. Somers, Leeds; R. W. Burke, A.V.D., Jubbulpore; A. W. Hill, London; R. Rutherford, Edinburgh; G. R. Dudgeon, Sunderland; W. Ridgman, Cornwall; J. A. Meredith, A.V.D., India; J. S. Hurndall, Blackheath; W. Caudwell, Worksop; G. Howe, Buxton; J. B. Savage, A.V.D., Aldershot; W. S. Adams, A.V.D., Hosur, India; J. Malcolm, Birmingham; T. Marriott, A.V.D., Sialkote, India; F. C. Mahon, Darlington; M. Rossignol, Melun, France; G. Mayor, Kirkham; Professor McCall, Glasgow; H. Kidd, Hungerford; S. Villar, London.

BOOKS AND PAMPHLETS: *J. Woodroffe Hill*, The Dog, its Management and Diseases; *J. A. McBride*, Anatomical Outlines of the Horse; *L. Franck and Ph. Goring*, Handbuch der Tierärztlichen Gebürtshülfe; *F. Friedberger and E. Fröhner*, Lehrbuch der Speciellen Pathologie und Therapie der Hausthiere; Bulletin des Séances de la Société Nationale d'Agriculture de France.

JOURNALS, ETC.: *Journal of the Agricultural Society of Victoria; Bell's Weekly Messenger; Giornale di Veterinaria Militare; Recueil de Médecine Vétérinaire; American Veterinary Review; Revue Vétérinaire; Hufschmied; Thierarzt; Wochenschrift für Thierheilkunde und Viehzucht; Echo Vétérinaire; Annales de Médecine Vétérinaire; Mark Lane Express; Live Stock Journal; Edinburgh Medical Journal; London Medical Record; American Live Stock Journal; Journal de Médecine Vétérinaire et Zootechnie; Lancet; British Medical Journal.*

NEWSPAPERS: *Glasgow Herald; Yorkshire Post; Devon and Exeter Daily Gazette; L'Avenir de Seine-et-Marne; Boston (U.S.A.) Herald; Boston (U.S.A.) Gazette.*